WEST VIRGINIA
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OFFICE WEST VIRGINIA
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NOTICE OF RULE MODIFICATION OF A PROPOSED RULE

AGENCY: WV Office of Miners' Health, Safety and Training TITLE NUMBER: 56

CITE AUTHORITY: W. Va. Code § 22A-4-3

AMENDMENT TO AN EXISTING RULE: YES ___ NO x

IF YES, SERIES NUMBER OF RULE BEING AMENDED: n/a

TITLE OF RULE BEING AMENDED: n/a

IF NO, SERIES NUMBER OF RULE BEING PROPOSED: 20

TITLE OF RULE BEING PROPOSED: Rules Governing the Safety of Those Employed In and Around Quarries in ~~West Virginia~~

THE ABOVE PROPOSED LEGISLATIVE RULES, FOLLOWING REVIEW BY THE LEGISLATIVE RULE MAKING REVIEW COMMITTEE, IS HEREBY MODIFIED AS A RESULT OF REVIEW AND COMMENT BY THE LEGISLATIVE RULE MAKING REVIEW COMMITTEE. THE ATTACHED MODIFICATIONS ARE FILED WITH THE SECRETARY OF STATE.

Joshua P. Jones

Authorized Signature

Legislative Rule-Making

SEP 16 2014

Review Committee

TITLE 56
LEGISLATIVE RULES
OFFICE OF MINERS' HEALTH, SAFETY AND TRAINING

SERIES 20
RULES GOVERNING THE SAFETY OF THOSE EMPLOYED IN AND AROUND QUARRIES IN WEST VIRGINIA

§56-20-1. General.

1.1. Scope. – These rules govern the safety of employees in and around quarries.

1.2. Authority. – West Virginia Code § 22A-4-3.

1.3. Filing Date. –

1.4. Effective Date. –

1.5. Applicability. – These rules shall extend to all quarry operations. These rules shall not apply to any utility or railroad having facilities in the vicinity of quarry operations unless such utility or railroad is also the operator of such mining operations.

1.6. Other law applicable. – The provisions of West Virginia Code, 1931, as amended, §§ 22A-1-3, -4, -5, -7, -14, -15, -16, -17, -18, -19, -20, -22, -23, -31, -36; §§ 22A-2-70, -71, -71a, -79; § 22A-3; § 22A-4; § 22A-5-1 *et seq.*; Title 36 CSR Series 19; Title 37 CSR Series 1; Title 56 CSR Series 1, -2, -8; and Title 56 CSR Series 3.46 and 3.52, are applicable to quarries regulated by the West Virginia Office of Miners' Health, Safety and Training, except where the content and purpose of a specific provision would render its applicability inappropriate to quarries.

§56-20-2. Effect of Rule. These rules shall have the effect of law and violations shall be deemed a violation of law and so cited with the same effect as law. All provisions of Article 1, Chapter 22A of the West Virginia Code are applicable to these rules.

§56-20-3. Definitions.

3.1. The term "agent" means any person charged with the responsibility for the operations of all or a part of a quarry or the supervision of the miners on a quarry.

3.2. The term "approved" means in strict compliance with quarry law or, in the absence of law, accepted by a recognized body or organization whose approval is generally recognized as authoritative on the subject.

3.3. The term "barricade" means to obstruct passage of vehicles or equipment and warn or obstruct passage of persons.

3.4. The term "barrier" means material objects that separate, keep apart or demarcate, in a conspicuous manner, such as cones, stakes and warning tape, used in conjunction with warning signs.

3.5. The term "bench" means:

3.5.a. A ledge, which, in open-pit mines and quarries, forms a single level of operation above which mineral or waste materials are excavated from a contiguous bank or bench face. The mineral or waste is removed in successive layers, each of which is a bench, several of which may be in operation simultaneously in different parts, and at different elevations, in an open-pit mine or quarry.

3.5.b. A working level or step in a cut which is made in several layers.

3.6. The term "berm" means a pile or mound of material or equivalent capable of restraining a vehicle.

3.7. The term "blast controller" means a firing device for electronic detonator circuits which may have functions (such as programming, communication, circuit diagnostics, etc.) in addition to charging and transmission of the firing command.

3.8. The term "blast site" means the area where explosive material is handled during loading of blast holes, including fifty (50) feet in all directions from the perimeter formed by loaded holes.

3.9. The term "blasting accessories" means non-explosive devices and materials used in blasting, such as, but not limited to, cap crimpers, tamping bags, blasting machines, blasting galvanometers, and cartridge punches.

3.10. The term "blasting agent" means explosive material which meets prescribed criteria for insensitivity to initiation. For storage, the Code of Federal Regulations (C.F.R.) defines a blasting agent as any material or mixture, consisting of fuel and oxidizer intended for blasting, not otherwise defined as an explosive: Provided, That the finished product, as mixed for use or shipment, cannot be detonated by means of a No. 8 test blasting cap (detonator) when unconfined (ATF Regulation). For transportation, the C.F.R. defines Class 1, Division 1.5 (blasting agent) as a substance which has mass explosion hazard, but is so insensitive that there is very little probability of initiation or of transition from burning to detonation under normal conditions in transport and passes all United States Department of Transportation (DOT) tests defining blasting agent, including insensitivity to a No. 8 blasting cap in accordance with the C.F.R.

3.11. The term "blasting area" means the area near blasting operations in which concussion or flying material can reasonably be expected to cause injury.

3.12. The term "borehole" means a hole drilled in the material to be blasted for the purpose of containing an explosive charge, also called blast hole or drill hole.

3.13. With respect to brake systems:

3.13.a. The term "service brakes" or "service braking system" means the primary brake system used for stopping a vehicle.

3.13.b. The term "emergency braking system" means the system used for stopping a vehicle in the event of any single failure in the service brake system.

3.13.c. The term "parking brakes" means a system to hold a stopped vehicle in a stationary position.

3.14. The term "branch circuit" means any circuit, alternating current or direct current connected to and leading from the main power lines.

3.15. The term "burden" means material in surface mining.

3.16. The term "cable" means a standard conductor (single conductor cable) or a combination of conductors insulated from one another (multiple conductor cable).

3.17. The term "circuit breaker" means a device for interrupting a circuit between separable contacts under normal or abnormal conditions.

3.18. The term "competent person" means a person designated by the quarry operator or independent contractor who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous or dangerous to employees and who has authorization to take prompt corrective measures to eliminate them.

3.19. The term "Department" means the West Virginia Office of Miners' Health, Safety and Training provided for in Section 1, Article 1 of Chapter 22A of the West Virginia Code.

3.20. The term "(derived) neutral" means a neutral point or connection established by the addition of a "zigzag" or grounding transformer to a normally ungrounded power system.

3.21. The term "detonator" means blasting caps.

3.22. The term "detonating cord" means a flexible cord containing a center core of high explosives to detonate other explosives with which it comes in contact.

3.23. The term "Director" means the Director of the West Virginia Office of Miners' Health, Safety and Training.

3.24. The term "downline" means the line extending down the borehole used to carry energy to the detonating cap.

3.25. The term "effectively grounded" is an expression which means grounded through a grounding connection of sufficiently low impendence (inherent or intentionally added or both) so that ground faults which may occur cannot build up voltages in excess of limits established for apparatus, circuits or systems so grounded.

3.26. The term "electric blasting caps" means instantaneous electric blasting caps and all types of delay electric blasting caps.

3.27. The term "electrical storm" means an atmospheric disturbance characterized by intense electrical activity producing lightning strikes and strong electric and magnetic fields. Synonymous with a thunderstorm and a lightning storm.

3.28. The term "electrical work" means work consisting primarily of electrical construction, installation, testing, inspection, maintenance, and repair tasks on electrical equipment, apparatus, circuits and/or distribution circuits rated fifty (50) volts and above. Note: Examples not considered electrical work:

3.28.a. Normal operation of electrical equipment; and

3.28.b. Normal operation of controls, switches, disconnect switches or circuit breakers provided that no energized parts or conductors are exposed.

3.29. The term "electronic detonator" means a detonator that utilizes stored electrical energy as a means of powering an electronic timing delay element/module and that provides initiation energy for firing the base charge.

3.30. The term "emulsion" means an explosive material containing substantial amounts of oxidizer dissolved in water droplets, surrounded by an immiscible fuel or droplets of an immiscible fuel, surrounded by water containing substantial amounts of oxidizer.

3.31. The term "extraneous electricity" means electrical energy, other than actual firing current or the test current from a blasting galvanometer, that is present at a blast site and that could enter an electric blasting circuit. It includes stray current, static electricity, radio frequency (electromagnetic) waves and time varying electric and magnetic fields.

3.32. The term "extreme slope" is any slope greater than a 1.5 (horizontal) to 1 (vertical).

3.33. The term "explosives" means any or all of the following, but is not limited to: water gel slurries, dynamites, permissibles, pellet powder, blasting caps, electric blasting caps, non-electrical delay blasting caps, electronic computer chip blasting caps, cast primer and boosters, detonating cord and detonating cord delay connections.

3.34. The term "firing/blasting device" means a device capable of charging and transmitting a fire command to an electronic, electric or non-electric detonator circuit.

3.35. The term "firing/lead line" means the wires connecting electric or electronic blasting circuit(s) to the electrical power source/blast controller. In cases of non-electrical initiation systems, the line that connects the blasting circuit(s) to the blasting initiating device.

3.36. The term "FOPS" means Falling Object Protection System.

3.37. The term "foreperson" means the person whom the employer or superintendent shall place in charge of the workings of the quarry and of the persons employed thereon.

3.38. The term "grounding conductor" means a conductor used to connect equipment or the grounded circuit of a wiring system to a grounding electrode or electrodes.

3.39. The term "high voltage" means voltages of more than one thousand (1,000) volts.

3.40. The term "highwall" means the unexcavated face of exposed overburden in an opencast quarry or the face or banks on the uphill side of a contour quarry.

3.41. The term "imminent danger" means the existence of any condition or practice at a quarry which could be expected to cause death or serious physical harm before such condition or practice can be abated.

3.42. The term "independent contractor" means any firm, corporation, partnership or individual that contracts to perform services or construction at a quarry, excluding quarry vendors, office equipment suppliers, service or delivery personnel.

3.43. The term "inspector" means mine inspector employed by the West Virginia Office of Miners' Health, Safety and Training as provided in Chapter 22A , Article 1 of the West Virginia Code.

3.44. The term "Institute of Makers of Explosives (IME)" means a non-profit safety-oriented trade association representing producers of commercial explosive materials in the United States and Canada and dedicated to safety in the manufacture, transportation, storage, handling and use of explosive materials.

3.45. The term "interested persons" includes the operator, members of any quarry safety committee at the quarry affected and other duly authorized representative of the quarry workers and the West Virginia Office of Miners' Health, Safety and Training.

3.46. The term "lightning arrestor" means a protective device for limiting surge voltage from electrical storms on equipment.

3.47. The term "loaded hole" means a borehole containing explosive material(s).

3.48. The term "loading" means placing explosive material in a borehole or against material to be blasted.

3.49. The term "low voltage" means up to and including six hundred sixty (660) volts.

3.50. The term "medium voltage" means voltages from six hundred sixty-one (661) to one thousand (1,000) volts.

3.51. The term "miner" means any individual working in a quarry.

3.52. The term "misfire" means a blast or specific borehole that failed to detonate as planned. Also, the explosive materials that failed to detonate as planned.

3.53. The term "neutral point" means the connection point of transformer or generator windings from which the voltage to ground is nominally zero (0), and is the point generally used for system groundings in a wye-connected AC power system.

3.54. The term "Notice of Violation" means a notice issued pursuant to the provisions of Section 15, Article 1, Chapter 22A of the West Virginia Code.

3.55. The term "operator" means any firm, corporation, partnership, or individual operating any quarry or part thereof, or engaged in the construction of any facility associated with a quarry, and shall include any independent contractor at a quarry.

3.56. The term "overburden" means material of any nature lying on top of a deposit of a mineral which is to be mined.

3.57. The term "person" means any individual, partnership, association, corporation, firm, subsidiary of a corporation or other organization.

3.58. The term "portable trailing cable" means a flexible cable or cord used for connecting mobile, portable or stationary equipment to a source of electrical energy where permanent wiring is prohibited or is impracticable.

3.59. The term "power center or distribution center" means a combined transformer or distribution unit, complete within a metal enclosure from which one (1) or more low voltage power circuits are taken.

3.60. The term "primer" means a cartridge or container of explosives into which a detonator or detonating cord is inserted or attached, and whose purpose is to initiate the main explosive charge.

3.61. The term "production operator" means any owner, lessee, or other person who operates, controls or supervises a quarry.

3.62. The term "qualified electrician" will be as follows after the effective date of this rule: "Qualified electrician" means one who, by possession of a recognized degree, certificate, license, or professional standing, or who by extensive knowledge, training and experience, has successfully demonstrated his/her ability to solve or resolve problems relating to electrical work and has passed a test administered by a recognized governing body, such as West Virginia Office of Miners' Health, Safety and Training, West Virginia State Fire Marshal or the Mine Safety and Health Administration (MSHA). This does not exclude other recognized governing bodies. Any participating organizations in training and testing must be approved by the Director of the West Virginia Office of Miners' Health, Safety and Training or his authorized representative. "Qualified electricians" already acting in quarry mines prior to the effective date of this rule may continue to act as a qualified electrician: Provided, That the operator has a written record of one (1) year employment documented as an electrician which is kept on file at the quarry and provided to West Virginia Office of Miners' Health, Safety and Training. Electricians that are already acting as qualified electricians before the effective date of this rule and do not have one (1) year experience may be allowed to continue training under a qualified electrician until one (1) year is obtained. In no case after the effective date of this rule will a person start training as an electrician without approval from the West Virginia

Office of Miners' Health, Safety and Training. A training plan shall be developed by the quarry operator and approved by the Office of Miners, Health, Safety and Training prior to new electricians being trained.

3.63. The term "quarry" means all areas being surface mined or being underground mined, as well as adjacent areas ancillary to the operations, together with preparation of processing plants, storage areas and haulage ways, roads, shops and trails.

3.64. The term "radio equipment" means an electronic transmitting device which radiates radio frequency waves. The transmitting device may be fixed (stationary) or mobile, and includes car telephones, citizens band radios, AM and FM radio transmitters, television transmitters, radar transmitters and any other wireless transmitting device.

3.65. The term "radio frequency transmissions" means the energy radiated as electromagnetic waves in the radio frequency spectrum.

3.66. The term "ROPS" means Roll Over Protection Structure.

3.67. The term "safety fuse" means a flexible cord containing an internal burning medium by which fire or flame is conveyed at a continuous and uniform rate from the point of ignition to the point of use, usually a blasting cap.

3.68. The term "shot or round" means a group of loaded boreholes fired, or intended to be fired, in a continuous sequence with the application of initiating energy.

3.69. The term "static electricity" means an electric charge at rest on a person or object. It is most often produced by the contact and separation of dissimilar insulating materials.

3.70. The term "stored energy" means the energy that has not been used or dissipated.

3.71. The term "stray current" means a flow of electricity outside an insulated conductor system.

3.72. The term "suitable" means that which fits and has the qualitites or qualifications to meet a given purpose, occasion, condition, function or circumstances.

3.73. The term "superintendent" means the person who shall have, on behalf of the operator, immediate supervision of one (1) or more quarries.

3.74. The term "supervisor" means a superintendent, foreperson, or any person specifically designated by the employer to supervise work of employees and who is acting pursuant to such specific designation and instructions.

3.75. The term "working place" means all areas in or about a quarry where persons are working.

3.76. The term "wye-connected" means a power system connection in which one (1) end of each phase windings or transformers or AC generators are connected together to form a neutral point, and a neutral conductor may or may not be connected to the neutral point, and the neutral point may or may not be grounded.

3.77. The term "zigzag transformer (grounding transformer)" means a transformer intended primarily to provide a neutral point for grounding purposes.

§56-20-4. Quarry Foreperson and Competent Person; Daily Inspection of Working Places; Records.

4.1. Pre-shift examination.

4.1.a. Within three (3) hours prior to the beginning of any shift the quarry foreperson or competent person shall visit and carefully examine all active working places of the quarry.

4.1.b. Upon completion of the examination, the foreperson or competent person shall record the results in a book approved by the Director of the West Virginia Office of Miners' Health, Safety and Training at the designated station at the quarry before persons enter the working area of the quarry. Before the beginning of any shift upon which they shall perform supervisory duties, the quarry foreperson or competent person shall review carefully and countersign all books and records of the prior shift reflecting the conditions under their supervision, exclusive of equipment logs, which the operator is required to keep.

4.1.c. The operator shall have weekly safety meetings with all employees which shall provide training in the working practices and conditions at the quarry and rules applicable thereto. A record of the topic of the weekly safety meetings shall be kept and signed by all people in attendance. This record shall be kept for one (1) year and made available to a representative of the Director upon request.

4.2. On-Shift Examination. The quarry foreperson or competent person shall examine all working places at the quarry under supervision for hazards at least once every four (4) hours during each working shift, or more often if necessary for safety. Upon completion of the examination(s), the foreperson or competent person shall record the results and time(s) in a book approved by the Director. The quarry foreperson or competent person shall also, each day, read carefully and countersign with ink or indelible pencil all reports entered in the record book by the quarry foreperson or competent person on the prior shift.

4.3. Records of Examinations. All violations or hazardous conditions and the action taken to correct such violations or conditions including the pre-shift and on-shift examinations shall be recorded in ink or indelible pencil in a book approved by the Director of the West Virginia Office of Miners' Health, Safety and Training, and kept at the quarry office for a period of one (1) year.

4.4. Dangerous conditions. Should the quarry foreperson or competent person find a place to be in a dangerous condition, he/she shall not leave the place until it is made safe, or shall remove the persons working therein until the place is made safe by some competent person designated for that purpose. He/she shall also record any dangerous conditions and practices found during his/her

examination in a book provided for that purpose. The quarry foreperson shall give prompt attention to the removal of all dangers reported to him/her by his/her assistants or any other person working in the quarry.

4.5. Close deep operations. When a quarry operation is known to be close to an active underground quarry or mine, the quarry foreperson or superintendent shall give the official representative of the underground quarry or mine at least twelve (12) hours notice in advance of any contemplated blasting that may endanger the safety of persons employed in the underground quarry or mine.

4.6. Instructions. The quarry foreperson shall see that every person employed to work at such quarry shall, before beginning work therein, be instructed in the particular dangers incident to the work in such quarry. A record of such instructions shall be kept and made available upon request by an authorized representative of the Director.

4.7. Upon the operator's written request and the Director's written approval, a pre-shift inspection of designated areas of operations may be excluded or modified.

§56-20-5. Duty of Quarry Foreperson to Notify Operator When Unable to Comply with Law; Duty of Operator. The quarry foreperson shall notify, in writing, the operator or superintendent of the quarry and the Director of the West Virginia Office of Miners' Health, Safety and Training of his/her inability to comply with any of the requirements of this law, and it shall then become the duty of such operator or superintendent promptly to attend to the matter complained of by the quarry foreperson so as to enable him/her to comply with the provisions hereof. Every operator of a quarry shall furnish all supplies necessary for the quarry foreperson to comply with the requirements of this law after being requested to do so in writing by the quarry foreperson.

§56-20-6. Ground Control.

6.1. Loose material removal. Loose hazardous material shall be stripped for a safe distance, except where vegetation is required to support the slope from the top of pit or high walls, and the loose unconsolidated material shall be sloped to the angle of repose, or barriers, baffle boards, screen, or other approved devices that afford equivalent protection.

6.2. Benches. When a bench is required to insure safe operations, the width and height of the bench shall be governed by the type of equipment to be used and the operations to be performed, type of material and height of wall.

6.3. Highwall and burden bank work areas.

6.3.a. The highwall shall be sloped or benched to prevent or minimize the danger of a slide. All overhanging ledges and loose material shall be scaled from the highwall. When scaling of a highwall is necessary to correct conditions, a safe means shall be provided to perform such work.

6.3.b. When the highwall is cracked and shows evidence of movement, or of weakening, the area shall be made safe or abandoned and dangered off. Any highwall failure that

affects the safe working conditions of the quarry shall be reported to the West Virginia Office of Miners' Health, Safety and Training within twenty-four (24) hours of the time of discovery of the failure.

6.3.c. Trees endangering workmen along highwalls shall be removed. Trees that cannot be safely removed shall be barricaded and no work shall be done in the area. Such work shall be completed during daylight hours.

6.3.d. Burden banks shall be placed an adequate distance from the pit to prevent any material from rolling back and endangering the works. Burden shall be kept free of bodies of water which would be hazardous in active work areas. Burden material shall be sloped to the angle of repose or other measures taken to prevent the material from slothing, sliding, or rolling into the pit.

6.3.e. Persons, other than those designated to correct unsafe conditions, shall not work near or under highwalls or banks.

6.3.f. During bench loading, adequate precautions shall be taken to prevent equipment from going over a highwall or bench.

6.4. Scaling and Support. Ground conditions that create a hazard to persons shall be taken down or supported before other work or travel is permitted in the affected area. Until corrective work is completed, the area shall be posted with a warning against entry and, when left unattended, a barrier shall be installed to impede unauthorized entry.

6.5. Scaling tools. Where manual scaling is performed, a scaling bar shall be provided. This bar shall be of a length and design that will allow the removal of loose material without exposing the person performing the work to injury.

6.6. Rock fixtures.

6.6.a. When rock bolts and accessories addressed in the American Society for Testing and Materials (ASTM) F432-83, "Standard Specification for Roof and Rock Bolts and Accessories," are used for ground support, the mine operator shall:

6.6.a.1. Obtain a manufacturer's certification that the material was manufactured and tested in accordance with the specifications of ASTM F432-83; and

6.6.a.2. Make this certification available to an authorized representative of the Director.

6.6.b. Fixtures and accessories not addressed in ASTM F432-83 may be used for ground support provided they:

6.6.b.1. Have been successful in supporting the ground in an area with similar strata, opening dimensions and ground stresses in any mine; or

6.6.b.2. Have been tested and shown to be effective in supporting ground in an area of the affected mine which has similar strata, opening dimensions, and ground stresses as the area where the fixtures are expected to be used. During the test process, access to the test area shall be limited to persons necessary to conduct the test.

6.6.c. Bearing plates shall be used with fixtures when necessary for effective ground support.

6.6.d. The diameter of finishing bits shall be within a tolerance of plus or minus 0.030 inch of the manufacturer's recommended hole diameter for the anchor used. When separate finishing bits are used, they shall be distinguishable from other bits.

6.6.e. Damaged or deteriorated cartridges of grouting material shall not be used.

6.6.f. When rock bolts tensioned by torqueing are used as a means of ground support, selected tension level shall be:

6.6.f.1. At least fifty percent (50%) of either the yield point of the bolt or anchorage capacity of the rock, whichever is less; and

6.6.f.2. No greater than the yield point of the bolt or anchorage capacity of the rock.

6.6.f.3. The torque of the first bolt, every tenth bolt, and the last bolt installed in each work area during the shift shall be accurately determined immediately after installation. If the torque of any fixture tested does not fall within the installation torque range, corrective action shall be taken.

6.6.g. When grouted fixtures can be tested by applying torque, the first fixture installed in each work place shall be tested to withstand one hundred fifty (150) foot-pounds of torque. Should it rotate in the hole, a second fixture shall be tested in the same manner. If the second fixture also turns, corrective action shall be taken.

6.6.h. When other tensioned and non-tensioned fixtures are used, test methods shall be established and used to verify their effectiveness.

6.6.i. The mine operator shall certify that tests were conducted and make the certification available to an authorized representative of the Director.

6.7. Ground support use. Ground support shall be used where ground conditions, or mining experience in similar ground conditions in the mine, indicate that it is necessary. When ground support is necessary, the support system shall be designed, installed, and maintained to control the ground in places where persons work or travel in performing their assigned tasks. Damaged, loosened, or dislodged timber used for ground support which creates a hazard to persons shall be repaired or replaced prior to any work or travel in the affected area.

6.8. Examinations. Should a slide occur, a foreperson shall examine the area of the slope for danger of additional slides. No person shall work in the area until the examination is complete and the area declared safe.

6.9. Repairs in excavation areas.

6.9.a. Special safety precautions shall be taken when persons are required to perform repair work between immobilized equipment and within a safe distance from the highwall or burden bank where such equipment may hinder escape from falls or slides. A competent person shall be designated to observe the highwall or burden bank. When equipment is mobile, it shall be moved to a safe location away from dangerous banks or highwalls.

6.9.b. Persons shall not perform maintenance work between machinery, equipment, and the face or ribs unless the area has been tested and, when necessary, secured. When equipment is mobile, it shall be moved to a safe location.

6.10. Tree removal. When miners are in the area, suitable warning shall be given before equipment shoves over or uproots trees, and workers shall be removed from the immediate vicinity.

6.11. Night work. When quarrying is performed at night, the pits, highwalls, and dump areas in the vicinity of the work shall be adequately illuminated.

6.12. Dump areas.

6.12.a. Safety berms shall be provided at the edge of all fill areas to prevent over-travel or overturning. The berm will consist of material end dumped and/or pushed by the fill dozer to create an adequate berm. The minimum height of the berm will be axle height of the largest rubber tire equipment working on the fill. Safety berms shall not be damaged by, or used as a stop block, by haulage equipment.

6.12.b. Should the outer slope of the fill become steeper than the safe angle of repose, short-dumping procedures shall be initiated. Equipment operators and truck drivers operating on the fill will be informed of the steep slope condition and will be required to dump a minimum of one (1) truck length from the edge of the fill. Short dumping shall continue until a safe angle of repose is established.

6.12.c. In the event tension cracks appear near the outer edge of the fill, short dumping will be initiated. Equipment operators and truck drivers working on the fill will be informed of the tension cracks and will be required to dump a minimum of one (1) truck length from the tension cracks.

6.12.d. In the event of tension cracks developing in a fill, the following procedures shall be initiated:

6.12.d.1. The dozer shall begin a cut a safe distance back from tension crack. The cut will extend forward to the edge of the fill.

6.12.d.2. The dozer operator will take special precautions to prevent over-travel at the edge of the fill. This procedure will be utilized until the tension crack is removed.

6.12.d.3. Material will be dumped at the back edge of the cut and pushed in place by the dozer to reestablish the safe working elevation. Should additional tension cracks occur, these procedures will be repeated.

6.12.e. The surface of the fill shall be graded/sloped to prevent water from impounding near the edge of the fill.

6.13. Ground Control Plan. A copy of the current adopted Ground Control Plan shall be posted at the mine and a copy given to the State Mine Inspector.

§56-20-7. Drilling.

7.1. Inspection. All drilling equipment shall be provided with restraining devices installed properly to prohibit the free fall of drill steels which may break or become unthreaded at the point of the adaptor.

7.2. Horizontal drill.

7.2.a. When horizontal drills are used, the operator shall not leave the controls while the drill stems are in operation.

7.2.b. All persons shall be required to keep in the clear of auger and drill stems while in motion. No person shall be permitted to pass under or step over a moving drill stem or auger.

7.2.c. Prior to horizontal holes being drilled in overburden, a careful inspection of the highwall face shall be made. All loose hazardous material shall be removed before other work is performed.

7.3. Vertical drilling.

7.3.a. When vertical drilling operations are being performed, the drill machine shall be continuously attended.

7.3.b. When churn drills or vertical rotary drills are used, the drill machine operator shall not work under suspended tools. When collaring holes, inspecting, or during any operation where tools are removed from the hole, the tools shall be lowered to the ground or platform.

7.3.c. No person shall be permitted around auger and drill stems that are in motion.

7.3.d. Starter hole drill steels shall be utilized when collaring holes with a hand-held drill.

7.3.e. No person shall be permitted on the drill mast while the drill bit or carriage is in motion. Tools and/or other material shall not be left on the drill mast.

7.3.f. Threads on all drill steels and related components shall be maintained in a safe working condition.

7.4. Drilling position.

7.4.a. Drill machine operators shall not drill from positions that hinder their access to controls levers, or from insecure footing, or staging, or from atop equipment not designated for this purpose.

7.4.b. Miners shall not hand grasp the drill steel while collaring holes or place their hands on the chuck or centralizer while drilling.

7.4.c. Miners operating or working near jackhammers or jackleg drills shall position themselves so they will not be struck or lose their balance if the drill steel breaks.

7.4.d. Drills shall not be positioned near the edge of the bench where safe egress from the operator's cab cannot be maintained.

7.4.e. When drilling near a highwall, the drill shall be positioned so the operator's cab is on the side of the drill away from the highwall. If this cannot be accomplished due to extenuating circumstances, a spotter shall be provided.

7.5. Movement of drills.

7.5.a. Vertical drill holes and blast crevices that remain open after blasting and constitute a hazard shall be protected to prevent persons from falling into them.

7.5.b. While moving a drill machine from one area to another, drill steel tools and other equipment shall be secured and the mast placed in a safe position.

7.5.c. The location of the drill machine helper shall be known to the drill machine operator at all times while such drill is being moved.

7.5.d. Hand-held air drills shall be turned off and all air bled from air hoses before such drill is moved from one working area to another and at the end of each shift.

§56-20-8. Explosives and Blasting.

8.1. Transportation vehicles. Motor vehicles used to haul explosives shall comply with the following provisions:

8.1.a. Possess two (2) portable fire extinguishers, either a multi-purpose dry chemical type, containing a nominal weight of five (5) pounds of dry powder and enough expellant to apply the powder, or a foam-producing type containing at least two and one-half (2-1/2) gallons of foam-producing liquid and enough expellant to supply foam. Only fire extinguishers approved by the Underwriters Laboratories (UL), carrying appropriate labels as to type and purpose, shall be used.

8.1.b. All electric wiring shall be adequately protected and securely fastened. Damaged insulated wiring shall be repaired or replaced immediately.

8.1.c. Chassis, engine, pan and bottom of vehicle body shall be reasonably clean and free of oil and grease. Cargo bins shall be cleaned as often as necessary to prevent the accumulation of ammonium nitrate or emulsion on or atop the bins.

8.1.d. Fuel tanks and lines shall have no leaks.

8.1.e. Safety devices including, but not limited to lights, horns, brakes, windshield wipers, and steering apparatus shall be functioning properly.

8.1.f. When explosives are not transported in their original closed containers or in special closed cases constructed of nonconductive material, the vehicle cargo space shall be lined with wood or approved non-sparking material.

8.1.g. The vehicle shall be plainly marked to indicate the nature of the cargo.

8.1.h. The vehicle shall be equipped with suitable sides and tailgates. The explosives shall not be piled higher than the side or end.

8.1.i. Handrails or fall protection devices shall be provided when persons are required to work atop the cargo bin of the bulk explosives truck.

8.1.j. Proper maintenance and examinations shall be performed to prevent overheating of the emulsion pump and a record of the examinations shall be kept at the quarry for one (1) year and made available to a representative of the Director upon request.

8.2. Transportation of explosives. – Precautions.

8.2.a. Explosives and/or detonators shall not be transported in the same vehicle unless separated by a substantially fastened four-inch (4") hardwood partition or equivalent approved material. Explosives and/or detonators shall not be transported in the cab of the vehicle.

8.2.b. Explosives and/or detonators shall be transported promptly without undue delays.

8.2.c. Only those persons necessary shall be permitted to ride in vehicles containing explosives and/or detonators.

8.2.d. When vehicles containing explosives or detonators are parked on a grade, the parking brakes shall be set and the vehicles blocked securely against rolling.

8.2.e. Vehicles containing explosives and/or detonators shall not be taken to a repair garage or shop.

8.2.f. Vehicles containing explosives and/or detonators shall not be left unattended unless the vehicle and all compartments containing explosives and/or detonators are properly locked to prevent unauthorized access.

8.2.g. Safe roads shall be maintained for access and exit to all blast areas where boreholes are loaded or being prepared to be loaded.

8.3. General requirements. -- Explosives.

8.3.a. The West Virginia Department of Environmental Protection shall be responsible for the examination and certification of persons engaging in or directly responsible for blasting or use of explosives in quarrying operations.

8.3.b. After the effective date of the certified blasters rules, all handling and transporting of explosives shall be under the direct supervision of a certified blaster (only applicable to a surface quarry).

8.3.c. The transportation, storage, handling and use of explosive materials and blasting accessories shall be in accordance with the current Institute of Makers of Explosives Warnings and Instructions. A copy of the current Institute of Makers of Explosives Warnings and Instructions shall be available to miners upon request. All persons involved in the blasting procedure shall be properly trained and familiar with these Warnings and Instructions and a record kept of this training for one (1) year and made available to a representative of the Director upon request.

8.3.d. Open fires and flames are prohibited within fifty (50) feet of the area where explosives are being stored, handled or used.

8.3.e. Explosives, blasting caps and electric blasting caps shall not be carried in pockets of clothing or left lying around unguarded.

8.3.f. During the approach and progress of an electrical storm:

8.3.f.1. Surface blasting operations shall be suspended and persons withdrawn from the blast area or to a safe location.

8.3.f.1.A. When drills are located on a bench with loaded holes, or holes being loaded, masts shall be lowered upon the approach of an electrical storm when practical.

8.3.f.2. Underground electrical blasting operations that are capable of being initiated by lightning shall be suspended and all persons withdrawn from the blast area or to a safe location.

8.3.g. All runways, chutes and conveyors used for unloading of explosives shall have no exposed sparking metal parts.

8.3.h. Explosives and detonators shall be kept at a safe location.

8.3.i. Driving vehicles or dragging boxes over firing lines, detonator wires, explosives, blasting agents, and detonators shall be prohibited. Traveling over loaded holes shall be prohibited.

8.3.j. Previously frozen explosives of nitroglycerin base shall not be used. Deteriorated or damaged explosives and detonators shall be destroyed by an authorized representative of the manufacturing company.

8.3.k. Explosives and/or detonators shall not be transported in a bucket or a dragline or like equipment.

8.3.l. Defective or damaged blasting equipment or accessories shall not be used.

8.3.m. No shots shall be fired in any place where gas is detected with an air quality testing device.

8.4. Shooting preparation.

8.4.a. Primers shall not be made up until ready to be inserted in the hole.

8.4.b. Two-way radio equipment shall be turned off prior to the handling and use of electric detonators for the proposed shot. This rule does not apply to radios operating beyond the distances shown on Table 1 found at the end of this rule. Adequate warning signs shall be located on all travel roads at a distance of not less than one hundred (100) feet from the minimum transmitting distance. When using electronic detonators, the detonators shall be protected from electromagnetic, radio frequency transmissions, or other electrical interference sources in accordance with the manufacturer's recommendations.

8.4.c. Only equipment necessary for preparing and loading holes shall be permitted to work within fifty (50) feet of loaded holes or holes being loaded. This distance of fifty (50) feet shall include the entire column of the loaded hole when equipment is excavating on the same bench level as loaded holes. In cases of emergency, in which the equipment indicated above has malfunctioned and cannot be removed from the area, the blaster and foreperson shall direct the use of maintenance equipment if required to safely repair and/or remove the disabled equipment from the area. Adequate precautions shall be taken to prevent extraneous electricity from entering an electrical blasting circuit. Electrically-powered equipment and trailing cables shall be prohibited from being within one hundred (100) feet of loaded holes or holes being loaded. When a potential source of extraneous electricity is present in the general area and electrical detonators are to be used, a stray current test shall be made on the bench prior to commencing loading holes; if current is detected, the source of the extraneous electricity shall be neutralized before loading may begin.

8.4.d. Holes shall not be drilled if there is danger of intersecting a loaded or a misfired hole. When drill(s) are being operated on a bench being loaded, a minimum of one (1) hole around the perimeter of the drill shall remain unprimed and unloaded.

8.4.e. Only wooden or other approved non-sparking implements shall be used to punch holes in an explosive cartridge.

8.4.f. Tamping poles shall be blunt and squared at the end and made of wood or other, non-sparking, approved material.

8.4.g. Tamping shall not be performed directly on a capped primer.

8.4.h. When a quarry has cut into a known active underground quarry or mine, the district mine inspector and an official representative of the quarry or mine shall be notified before any blasting is performed. The mine inspector, quarry and/or mine representative shall determine and agree during what hours blasting shall be performed.

8.4.i. Misfires shall be handled only by or under the direction of a certified blaster and foreperson.

8.4.j. In order for the blaster to maintain control of the shot, up to the point of detonation, no type of safety fuse detonators shall be used.

8.4.k. No detonators, detonating cord, igniter cord, or any explosives shall be used if they have been water soaked.

8.4.l. Electric blasting caps shall be fired with an approved blasting device.

8.4.m. Explosives shall be kept separated at least fifteen (15) feet from detonators until loading is started, unless an approved container is utilized.

8.4.n. Ample warning shall be given by an audible warning device before blasts are fired. All persons shall be removed from the blasting area.

8.4.o. Detonating caps taken into a pit prior to being used shall be kept in an approved suitable container.

8.4.p. At least a five (5) foot air gap shall be provided between the blasting circuit and the power circuit when the hole or series of holes are being connected.

8.4.q. When loading beneath highwalls, the highwall shall be carefully inspected by the blaster in charge before beginning the loading process. Persons shall not load boreholes in areas where the highwall is unstable.

8.4.r. Boreholes shall not be located near the outer edge of highwalls/benches where such location could create a danger of falling over the highwall by persons loading boreholes. Boreholes located dangerously close to the outer edge of the highwall/bench shall not be loaded. Persons loading boreholes shall not work within six (6) feet of the outer edge of the highwall/bench unless adequate fall protection is provided.

8.5. Firing/lead lines.

8.5.a. Firing/lead lines shall be well insulated and as long as may be necessary to permit persons authorized to fire shots to get in a safe place out of the line of fire.

8.5.b. Firing/lead lines shall be kept away from power wires and all other sources of electric current.

8.5.c. The firing/lead lines shall be of sufficient length to assure the safe location of persons participating in the blasting.

8.5.d. When using electric caps, the firing/lead line shall be kept shunted until connected to the approved blasting device.

8.5.e. Except when being tested with a blasting galvanometer, or other approved device, electric detonators shall be kept shunted until they are connected to the firing/lead line or wired into a blasting round.

8.5.f. A wired round shall be kept shunted until connected to the firing/lead line when using electric caps.

8.5.g. The blast area shall be cleared of personnel, vehicles, and equipment prior to connecting the firing/lead line to the firing device or blast controller or, in the case of remote-controlled detonation systems, prior to arming the firing device.

8.5.h. Remote control detonation systems shall be used in accordance with manufacturer's instructions. A copy of these instructions shall be available to miners upon request. All persons involved with the blasting procedure shall be properly trained and familiar with the manufacturer's instructions. A record of such training shall be kept for one (1) year and made available to a representative of the Director upon request.

8.5.i. When using electric or electronic detonators, adequate precautions shall be provided to prevent accidental electrical shock to the person(s) detonating the blast.

8.6. Blasting.

8.6.a. Any area in which holes are being loaded shall be guarded by danger signs located fifty (50) feet beyond the perimeter of loaded holes or by a person physically present to prevent unauthorized entry.

8.6.b. The blaster shall make sure that all persons are in a safe place before firing a shot. Additional personnel and radio communication, if needed to assure security of the blast area, shall be utilized. Radio silence shall be observed by all persons except those involved in the blasting procedure.

8.6.b.1. *For surface areas*, an approved audible warning device shall give ample warning before blasts are fired. The pre-blast warning signal shall be sounded three (3) minutes prior to the detonation of the blast and this signal shall consist of three short warning signals with five (5) second intervals between these signals. The post-blast signal that the blast area is clear shall consist of a twenty (20) second in duration signal. The warning shall be audible for a distance of at least one-half (½) mile.

8.6.b.2. *For underground areas*, ample warning shall be given to allow all persons to be evacuated.

8.6.c. The blaster shall assure that all components are properly connected to assure proper detonation of the blast.

8.6.d. All holes or series of holes containing detonators shall be fired immediately upon completion of loading. The blaster shall notify the supervisor in charge of workers in the area before commencing to connect loaded holes. Once beginning to connect loaded holes, this shall proceed without delay until all holes are connected. All persons within a three hundred (300) foot radius of the blast area shall be removed by the time all holes are connected and work shall not commerce again until the holes have been fired. However, after connecting the loaded holes, if for any reason the holes cannot be fired immediately, work shall not commence again until the holes have been fired or all holes disconnected.

8.6.e. *For Surface only.* The firing of holes shall be conducted during daylight hours.

8.6.f. Every reasonable effort shall be made to fire loaded holes on the shift they are loaded. However, if loaded holes must be left overnight, the following safeguards shall be utilized:

8.6.f.1. As a practice, connected holes shall not be left overnight unless emergency conditions exist (example: electrical storms) that do not allow the shot to be detonated. No persons shall be permitted within three hundred (300) feet of the blast area where connected loaded holes could not be detonated as planned.

8.6.f.2. The blaster, in conjunction with the foreperson, shall properly designate the area affected by unfired holes (connected/unconnected). Barriers (cones and flagging) and signs, or a person physically present, shall prevent personnel and/or equipment from entering the affected area.

8.6.f.3. The location of the unfired loaded holes shall be documented in the pre-shift/on-shift examination book.

8.6.f.4. All personnel on affected shifts shall know the route in which to travel to a safe location in the event unforeseen circumstances (electrical storms, unstable highwalls, etc.) arise while working in the area of unfired loaded holes.

8.6.g. When loading boreholes containing water, or if loaded holes are to be left for an extended period of time, sufficient slack in downlines shall be provided to prevent stretching and possible damage to downlines due to settling of material in the borehole.

8.6.h. When drilling and blasting in areas where underlying coal seam(s) are burning, or suspected of burning, a plan outlining safeguards to be provided for the protection of workers shall be submitted for approval to the West Virginia Office of Miners' Health, Safety and Training. Such drilling and blasting shall not commence until approval is granted.

8.7. Post firing.

8.7.a. The firing lines/lead lines shall be disconnected from the electrical power source immediately after each blast when electric or electronic detonators are used.

8.7.b. No persons shall return to the area where blasting has been performed until the dust, smoke and fumes have cleared.

8.7.c. After a blast:

8.7.c.1. *Surface*–the blaster shall examine the area and pronounce it safe before others enter the blast area.

8.7.c.2. *Underground*–a competent person shall examine the area and pronounce it safe before others enter the blast area.

8.8. Misfires.

8.8.a. When a misfire is detected, no persons shall return to the misfired holes for at least fifteen (15) minutes. Misfires shall be handled only by:

8.8.a.1. *Surface*–a certified blaster in the presence of the foreperson.

8.8.a.2. *Underground*–the foreperson and/or competent person.

8.8.b. When a shot has misfired, extra precaution shall be taken in the handling of the misfire. If a misfire is detected:

8.8.b.1. *Surface*–the blaster and the foreperson in charge shall determine the necessary action to be taken to safely correct the situation.

8.8.b.2. *Underground*–a competent person shall determine the necessary action to be taken to safely correct the situation.

8.8.c. When a misfire/unfired explosive exists, or is suspected to exist, all persons working in the area shall be notified and given instructions on proper handling of possible undetonated explosives. The location of these holes shall be recorded in the pre-shift/on-shift book.

8.8.d. Immediately after firing a misfired shot, the firing/lead lines shall be disconnected from the firing device or blast controller when electric or electronic detonators are used. When using electric detonators, the ends of the firing/lead lines shall also be shunted.

8.8.e. If explosives or blasting agents are suspected of burning in a hole, all persons in the blasting area shall move to a safe location and no person shall return to the hole for at least one (1) hour.

8.9. Storage of explosives.

8.9.a. After loading boreholes, all unused explosives shall be returned to the proper explosive storage magazine.

8.9.b. Separate surface magazines shall be provided for storage of explosives, detonators, and blasting heater elements. Surface magazines shall be constructed of incombustible material exposed inside the magazine. Surface magazines shall be provided with doors constructed of at least one-fourth inch (1/4") steel plate lined with a two inch (2") thickness of wood, or the equivalent, provided with adequate and effectively screened ventilation openings near the floor and ceiling, kept locked securely when unattended, posted with suitable danger signs so located that a bullet passing through the face of the sign will not strike the magazine. The location of the magazine shall not be less than two hundred (200) feet from any active work area, occupied buildings, or public roads unless barricaded. If magazines are illuminated electrically, the lamps shall be of vapor-proof type, properly installed and wired. Smoking, open flames, open lights or spark-producing devices shall be prohibited in or within fifty (50) feet of a detonator or explosive magazine or facility.

8.9.c. Explosives magazines shall be located at least one hundred (100) feet away from power lines and fuel storage areas.

8.9.d. Cases or boxes containing explosives shall not be stored on their ends or sides in magazines nor stacked more than six (6) feet high.

8.9.e. An area of twenty-five (25) feet around magazines shall be kept clear of dry leaves, grass, undergrowth, trash and debris.

8.9.f. Detonator and explosives storage magazines shall be separated by at least twenty-five (25) feet.

8.9.g. Ground rods shall be properly installed and secured on explosive storage magazines so as to provide sufficient electrical ground.

8.9.h. Semitrailer van(s) used for highway or on-site transportation of blasting agents are satisfactory for storing these materials, provided they are located according to the current American Table of Distance with respect to inhabited buildings, passenger railroads and public highways. Trailers will be provided with substantial means for locking, and the trailer doors shall be kept locked except during time of placement and removal of blasting agents.

8.10. Storage of underground explosives in main facilities.

8.10.a. Main facilities used to store explosive material underground shall be located:

8.10.a.1. In stable or supported ground;

8.10.a.2. So that a fire or explosion in the storage facilities will not prevent escape from the mine or cause detonation of the contents of another storage facility;

8.10.a.3. Out of the line of blasts, and protected from vehicular traffic, except that accessing the facility;

8.10.a.4. At least two hundred (200) feet from work places or shafts;

8.10.a.5. At least fifty (50) feet from electric substations;

8.10.a.6. A safe distance from trolley wires; and

8.10.a.7. At least twenty-five (25) feet from detonator storage facilities.

8.10.b. Main facilities used to store explosive material underground shall be:

8.10.b.1. Posted with warning signs that indicate the contents and are visible from any approach;

8.10.b.2. Used exclusively for the storage of explosive material and necessary equipment associated with explosive material storage and delivery;

8.10.b.2.A. Portions of the facility used for the storage of explosives shall only contain non-sparking material or equipment.

8.10.b.2.B. The blasting agent portion of the facility may be used for the storage of other necessary equipment.

8.10.b.3. Kept clean, suitably dry, and orderly;

8.10.b.4. Provided with unobstructed ventilation openings;

8.10.b.5. Kept securely locked unless all access to the mine is either locked or attended; and

8.10.b.6. Unlighted or lighted only with devices that do not create a fire or explosion hazard and which are specifically designed for use in magazines.

8.10.b.7. Electrical switches and outlets shall be located outside the facility.

8.11. Auxiliary facilities.

8.11.a. Auxiliary facilities used to store explosive material near work places shall be wooden, box-type containers equipped with covers or doors, or facilities constructed or mined-out to provide equivalent impact resistance and confinement.

8.11.b. The auxiliary facilities shall be:

8.11.b.1. Constructed of non-sparking material on the inside when used for the storage of explosives;

8.11.b.2. Kept clean, suitably dry, and orderly;

8.11.b.3. Kept in repair;

8.11.b.4. Located out of the line of blasts so they will not be subjected to damaging shock or flyrock;

8.11.b.5. Identified with warning signs or coded to indicate the contents with markings visible from any approach;

8.11.b.6. Located at least fifteen (15) feet from all haulage ways and electrical equipment, or placed entirely within a mined-out recess in the rib used exclusively for explosive material;

8.11.b.7. Filled with no more than a one (1) week supply of explosive material;

8.11.b.8. Separated by at least twenty-five (25) feet from other facilities used to store detonators; and

8.11.b.9 Kept securely locked unless all access to the mine is either locked or attended.

8.12. Bulk delivery vehicles.

8.12.a. No welding or cutting shall be performed on a bulk delivery vehicle until the vehicle has been washed down and all explosive material has been removed. Before welding or cutting on a hollow shaft, the shaft shall be thoroughly cleaned inside and out and vented with a minimum one-half (1/2) inch diameter opening to allow for sufficient ventilation.

§56-20-9. Underground Workings.

9.1. Mine workings.

9.1.a. The operator shall refrain from quarrying within five hundred (500) feet of any active or abandoned underground quarry or mine in order to prevent breakthroughs and to protect health or safety of miners: Provided, That the Director shall permit an operator to quarry near, through or partially through an abandoned underground mine/quarry or closer to an active underground mine/quarry if:

9.1.a.1. The nature, timing and sequencing of the approximate coincidence of specific quarry activities with specific underground mine/quarry activities are coordinated jointly by the operators involved and approved by the Director of the West Virginia Office of Miners' Health, Safety and Training, and

9.1.a.2. Such operations will result in improved resource recovery, abatement of water pollution or elimination of hazards to the health and safety of the public: Provided, That any breakthrough of an underground quarry or mine which does occur shall be sealed.

9.1.b. The official representative of any known underground mine/quarry shall be notified immediately when a quarry operation may in any way interfere with the safe operation of the active underground mine/quarry.

9.1.c. Special precautions shall be taken to protect the employees where excavating is being performed in the vicinity of a known abandoned underground mine/quarry which may contain a dangerous accumulation of water and/or gas.

9.1.d. All cut-throughs into underground mine/quarry workings shall be closed immediately.

9.1.e. Access to unattended mine openings shall be restricted by gates or doors, or the openings shall be fenced and posted.

9.1.f. Upon abandonment of a mine, the owner or operator shall effectively close or fence off all surface openings down which persons could fall or through which persons could fall or through which

persons could enter. Upon or near all such safeguards, trespass warnings and appropriate danger notices shall be posted.

9.2. Ventilation.

9.2.a. Ventilation plan. A plan of the mine ventilation system shall be set out by the operator in written form. Revisions of the system shall be noted and updated at least annually. The ventilation plan or revisions thereto shall be submitted to the Director of the West Virginia Office Miners' Health, Safety and Training or his authorized representative for review and comments upon his written request. The plan shall, where applicable, contain the following:

9.2.a.1. The mine name;

9.2.a.2. The current mine map or schematic or series of mine maps or schematics of an appropriate scale, not greater than five hundred (500) feet to the inch, showing:

9.2.a.2.A. Direction and quantity of principal air flows;

9.2.a.2.B. Locations of seals used to isolate abandoned workings;

9.2.a.2.C. Locations of areas withdrawn from the ventilation system;

9.2.a.2.D. Locations of all main, booster and auxiliary fans;

9.2.a.2.E. Locations of air regulators and stoppings and ventilation doors;

9.2.a.2.F. Locations of overcasts, undercasts and other airway crossover devices;

9.2.a.2.G. Locations of known oil or gas wells;

9.2.a.2.H. Locations of known underground mine openings adjacent to the mine;

9.2.a.2.I. Locations of permanent underground shops, diesel fuel storage depots, oil fuel storage depots, hoist rooms, compressors, battery charging stations, electrical distribution networks and explosive storage facilities. Permanent facilities are those intended to exist for one (1) year or more;

9.2.a.2.J. Significant changes in the ventilation system projected for one (1) year;

9.2.a.2.K. Mine fan data for all active main and booster fans including manufacturer's name, type, size, fan speed, blade setting, approximate pressure at present operating point, and motor brake horsepower rating;

9.2.a.2.L. Diagrams, descriptions or sketches showing how ventilation is accomplished in each typical type of working place including the approximate quantity of air provided, and typical size and type of auxiliary fans used;

9.2.a.2.M. The number and type of internal combustion engine units used underground, including make and model of unit, type of engine, make and model of engine, brake horsepower rating of engine, and approval number;

9.2.a.2.N. Unventilated areas. Unventilated areas shall be sealed or barricaded and posted against entry;

9.2.a.2.O. Auxiliary fan systems. When auxiliary fan systems are used, such systems shall minimize recirculation and be maintained to provide ventilation air that effectively sweeps the working places;

9.2.a.2.P. Construction and maintenance of ventilation doors;

9.2.a.2.Q. Ventilation doors shall be:

9.2.a.2.Q.1. Substantially constructed;

9.2.a.2.Q.2. Covered with fire-retardant material, if constructed of wood;

9.2.a.2.Q.3. Maintained in good condition;

9.2.a.2.Q.4. Self-closing, if manually operated; and

9.2.a.2.Q.5. Equipped with audible or visual warning devices, if mechanically operated.

9.2.a.2.R. Opening and closing of ventilation doors. When ventilation control doors are opened as a part of the normal mining cycle, they shall be closed as soon as possible to re-establish normal ventilation to working places.

9.2.a.2.S. Seals. Seals shall be provided with a means for checking the quality of air behind the seal and a means to prevent a water head from developing unless the seal is designed to impound water.

§56-20-10. Escapeways and Refuges.

10.1. Escapeways. – Underground Only.

10.1.a. Every mine shall have two (2) or more separate, properly maintained escapeways to the surface. A method of refuge shall be provided while a second opening to the surface is being developed. A second escapeway is recommended, but not required, during the exploration or development of an ore body.

10.1.b. In addition to separate escapeways, a method of refuge shall be provided for every employee who cannot reach the surface from his working place through at least two (2) separate escapeways within a time limit of one (1) hour when using the normal exit method. These refuges must be positioned so that the employee can reach one of them within thirty (30) minutes from the time he/she leaves his/her workplace.

10.1.c. Communication with refuge chambers. Telephone or other voice communication shall be provided between the surface and refuge chambers and such systems shall be independent of the mine power supply.

10.1.d. Escapeways.

10.1.d.1. Escape routes shall be:

10.1.d.1.A. Inspected at regular intervals and maintained in a safe, travelable condition;

10.1.d.1.B. Marked with conspicuous and easily read direction signs that clearly indicate the ways of escape.

10.1.e. Escape and evacuation plans. A specific escape and evacuation plan and revisions thereof suitable to the conditions and mining system of the mine and showing assigned responsibilities of all key personnel in the event of an emergency shall be developed by the operator and set out in written form. Within forty-five (45) calendar days after promulgation of this rule, a copy of the plan and revisions thereof shall be available to an authorized representative of the Director. Also, copies of the plan and revisions thereof shall be posted at locations convenient to all persons on the surface and underground. Such a plan shall be updated as necessary and reviewed with employees.

10.1.e.1. The plan shall include:

10.1.e.1.A. Mine maps or diagrams showing directions of principal air flow, location of escape routes and locations of existing telephones, primary fans, primary fan controls, fire doors, ventilation doors, and refuge chambers. Appropriate portions of such maps or diagrams shall be posted at all shaft stations and in underground shops, lunchrooms, and elsewhere in working areas where persons congregate;

10.1.e.1.B. Procedures to show how the miners will be notified of emergency;

10.1.e.1.C. An escape plan for each working area in the mine to include instructions showing how each working area should be evacuated. Each such plan shall be posted at appropriate shaft stations and elsewhere in working areas where persons congregate;

10.1.e.1.D. A fire fighting plan;

10.1.e.1.E. Surface procedure to follow in an emergency, including the notification of proper authorities, preparing rescue equipment, and other equipment which may be used in rescue and recovery operations; and

10.1.e.1.F. A statement of the availability of emergency communication and transportation facilities, emergency power and ventilation and location of rescue personnel and equipment.

10.1.f. Check-in, check-out system.

10.1.f.1. Each operator of an underground mine shall establish a check-in and check-out system which shall provide an accurate record of persons in the mine. These records shall be kept on the surface in a place chosen to minimize the danger of destruction by fire or other hazards. Every person underground shall carry a positive means of being identified.

10.1.g. Provisions and maintenance of self-rescue devices.

10.1.g.1. A one-hour self-rescue device approved by MSHA and the National Institute for Occupational Safety and Health (NIOSH) shall be made available by the operator to all personnel underground. Each operator shall maintain self-rescue devices in good condition.

10.1.h. Location of self-rescue devices.

10.1.h.1. Self-rescue devices shall be worn or carried by all persons underground except:

10.1.h.1.A. Where the wearing or carrying of self-rescue devices is hazardous to a person, such self-rescue devices shall be located at a distance no greater than twenty-five (25) feet from such person.

10.1.h.1.B. Where a person works on or around mobile equipment, self-rescue devices may be placed in a readily accessible location on such equipment.

10.1.i. Two-way communication equipment for underground operations.

10.1.i.1. Telephones or other two-way communication equipment with instructions for their use shall be provided for communication from underground operations to the surface.

§56-20-11. Haulage.

11.1. Roads. – Traffic directions and warning signs.

11.1.a. Traffic directions which differ from standard highway practice shall be posted on signs along the haulage roads at strategic points in letters at least three (3) inches high.

11.1.b. Well-marked signs conspicuously placed shall be properly located to alert drivers to existing danger areas, such as the approach to a dangerous curve or extreme grade.

11.1.c. Traffic rules, signals, and warning signs shall be standardized at each quarry.

11.1.d. Where side or overhead clearances on haulage roads or loading or dumping locations are hazardous to quarry workers, such areas shall be conspicuously marked and warning devices shall be installed when necessary to insure the safety of the workers.

11.1.e. Flashers, flares or other means of signaling shall be used to warn approaching drivers of a hazard created by an obstruction in the roadway.

11.1.f. Regulatory signs shall be used to indicate required method of traffic movement. (Example: "Stop", "Yield", "One Way".)

11.1.g. Posted warning signs shall be used where necessary to indicate potential hazardous conditions. (Example: "Hill", "Curve", "Truck Crossing".)

11.1.h. Object marking shall be used to mark physical obstruction in or near the haulage way that presents possible hazards. (Example: Reflectors and high visibility paint.)

11.1.i. All signs and marking shall be displayed and utilized so as to be effective as possible.

11.1.j. Object marking shall be used to mark physical obstruction in or near the haulage way that presents possible hazards. (Example: Reflectors and high visibility paint.)

11.2. Haulage Roads. – Construction and maintenance.

11.2.a. Haulage roads shall be located an adequate distance from highwalls/benches and burden banks to minimize the danger of falling material onto personnel and equipment.

11.2.b. When dust created by haulage is thrown into suspension in such quantities that may obscure the vision of the operators of vehicles, an adequate means shall be taken to allay such dust.

11.2.c. Only authorized persons shall be permitted on haulage roads and at loading or dumping locations.

11.2.d. Berms or guards shall be provided on elevated roadways.

11.2.e. The width and grade to be utilized in haulage road construction shall be determined for each specific situation based upon terrain configuration, vehicle characteristics, and driver visibility for safe haulage.

11.2.f. Haulage roads shall be constructed of sufficient width to permit the driver to maneuver his/her vehicle to avoid striking unexpected obstacles on the roadway where reclamation regulations permit.

11.2.g. Provisions shall be made to adequately drain and remove excessive water from the haulage roads.

11.2.h. Haulage roads shall be constructed, installed and maintained in a manner consistent with speed and type of haulage operations being conducted to insure safe operation. All roads leading to and from work sites on which persons are expected to travel to and from work or to haul material or supplies, shall be of sufficient width and be maintained in good condition.

11.2.i. Haulage operations shall be stopped when the haulage surface has deteriorated to the extent that it presents a danger to the safety of the haulage operation.

11.2.j. When required by the Director or his authorized representative, approved runaway roads or suitable equivalent shall be provided on all haulage roads on which material is first hauled from such quarry.

11.2.k. All power lines constructed over haulage roads shall be maintained a minimum of twelve (12) feet above all equipment used on haulage roads including dump trucks in a raised position.

11.3. Haulage equipment.–Construction and maintenance.

11.3.a. Haulage trucks shall not be operated with dirty windshields, cracked, dirty, or broken rearview mirrors.

11.3.b. Supplies, materials, and tools other than small hand tools shall not be transported with persons in vehicles unless such vehicles are specifically designed to make such transportation safe.

11.3.c. All new haulage vehicles placed into service shall be equipped with an emergency steering and braking system.

11.3.d. Where required by the Director, trucks used for haulage of materials, persons or supplies shall be equipped with two-way communication instruments.

11.3.e. All haulage vehicles placed into service shall be equipped with an approved supplemental emergency braking system.

11.4. Haulage equipment. – Operation.

11.4.a. Haulage truck operators shall make sure his/her truck path is unobstructed, especially when starting or moving the trucks forward or backward.

11.4.b. Radio or visual contact shall be made with an operator of a haulage truck to insure that it is safe to approach the truck.

11.4.c. Vehicles shall follow at a safe distance. Passing shall be limited to areas of adequate clearance and visibility.

11.4.d. No persons shall work or pass under the buckets or booms of equipment.

11.4.e. Drivers shall drive their trucks according to the condition of the road and the weather. At no time shall truck speeds exceed the safe predetermined speed limit that has been established on that haul road.

11.4.f. Haulage trucks traveling in the same direction shall not pass any vehicle until signals have been exchanged between both drivers and the vehicle to be passed pulls to the right side of the road.

11.4.g. Haulage trucks shall maintain a safe distance between the trucks they are following. Other vehicles shall maintain a minimum of one (1) car length for each ten (10) m.p.h. of travel in back of the vehicle they are following.

11.4.h. When approaching a state or county road, drivers shall maintain their trucks under control to stop, yield right of way, or obey the signals of a flagman.

11.4.i. When the body of a haulage unit is being raised, no person will be permitted in close proximity where they may be endangered.

11.4.j. Materials or equipment required in the cab of haulage equipment shall be adequately secured.

11.5. Parked vehicles.

11.5.a. Lights, flares, or other approved warning devices shall be adequately located when parked equipment creates a hazard to vehicular traffic.

11.5.b. Mobile equipment shall not be left unattended unless the brakes are set. The wheels shall be turned into a bank or berm, or shall be blocked, when such equipment is parked on a grade.

11.6. Employee parking and mantrips.

11.6.a. On all active quarries, a designated area shall be provided for parking of employees' vehicles. All employees shall park their personal vehicles at the designated parking area. Sufficient illumination shall be provided at all parking areas and parking areas shall be maintained in good condition.

11.6.b. No vehicle or other conveyance used to transport persons to and from work areas at quarries shall be overcrowded and all persons shall ride in a safe position.

11.6.b.1. All mantrips shall have, at a minimum, a "ten (10) unit" first aid kit, two-way communication, audible warning devices, and be equipped with strobe lights and/or whip antenna with florescent flag or equivalent.

11.7. Loading and hauling large rocks. Large rocks shall be broken before loading if they could endanger persons or affect the stability of mobile equipment. Mobile equipment used for haulage of mined material shall be loaded to minimize spillage where a hazard to persons could be created.

11.8. Loading, hauling and unloading of equipment or supplies. Equipment and supplies shall be loaded, transported, and unloaded in a manner which does not create a hazard to persons from falling or shifting equipment or supplies.

11.9. Supplies, materials and tools on mantrips. Supplies, materials, and tools, other than small items that can be carried by hand, shall not be transported underground with persons in mantrips.

11.10. Travelways. Safe means of access shall be provided and maintained to all working places.

§56-20-12. General Provisions.

12.1. Horseplay. Horseplay, practical jokes, wrestling, fighting or other actions which threaten persons with personal injury, causing them to fear for their personal safety or causing damage resulting in interference with safe operations, shall be prohibited.

12.2. Alcohol and drugs. Persons under the influence of alcohol or drugs shall not be permitted on a quarry or attendant facility. An authorized representative of the Director may cause any miner to be withdrawn from the quarry and request the quarry operator to search and/or test the miner for alcohol, drugs or drug paraphernalia.

12.3. Housekeeping. Paths, walkways, stairways, and roadways shall be kept free of obstructions. Structures and inside work areas shall be kept free of oil, spillage, litter, and dust accumulations.

12.4. Smoking. Smoking or open flames shall not be permitted in the following areas:

12.4.a. Within fifty (50) feet of the area where explosives are being stored, handled, or used;

12.4.b. Within one hundred fifty (150) feet of flammable liquid storage areas;

12.4.c. Within one hundred fifty (150) feet of liquefied and non-liquefied gas storage areas;

12.4.d. Within one hundred fifty (150) feet of the proximity of auger holes; and

12.4.e. Within one hundred fifty (150) feet of highwall miner openings.

12.5. Compressed air or gases.

12.5.a. Safety chains or suitable locking devices shall be used at connections to machines or high-pressured hose lines where a connection failure would create a hazard.

12.5.b. Compressors and compressed-air receivers shall be equipped with automatic pressure relief valves, pressure gauges, and drain valves.

12.5.c. Except where automatic shutoff valves are used, safety chains or other suitable locking devices shall be used at connections to machines of high-pressure hose lines of three-fourths (3/4) inch inside diameter or larger, and between high-pressure hose lines of three-fourths (3/4) inch inside diameter or larger, where a connection failure would create a hazard.

12.5.d. At no time shall compressed air be directed toward a person. When compressed air is used, all necessary precautions shall be taken to protect persons from injury.

12.6. No working alone. No person shall be assigned, or allowed, or be required to perform work alone in any area where hazardous conditions exist that would endanger his/her safety unless he/she can communicate with others, can be heard, or can be seen.

12.7. Stockpiles. Material shall not be stockpiled at or near exposed or buried gas lines.

12.8. Reclaiming hazards. No person shall be permitted to walk or stand immediately above a reclaiming area at or near a slurrage or storage pile where the reclaiming operations may expose him/her to a hazard.

12.9. Toilet facilities. Each operator of a quarry shall provide at least one sanitary toilet in a location convenient to each surface work site. All sanitary toilets shall be regularly maintained in a clean and sanitary condition. Where ten (10) or more employees use such facilities, sufficient toilets shall be furnished to provide approximately one (1) sanitary toilet for each ten (10) employees. Separate toilet facilities shall be provided for each sex except where toilet rooms will be occupied by no more than one (1) person at a time and can be locked from the inside.

12.10. Drinking water. An adequate supply of potable water shall be provided for drinking purposes in each worksite of the quarry. Water transported to all work sites shall be carried, stored and otherwise protected in sanitary containers.

12.11. Persons entering a quarry. Only authorized persons shall be permitted to enter a quarry. The quarry operator shall develop a plan to account for those authorized persons while at the quarry. The plan shall be available to a representative of the Director upon request.

§56-20-13. Electricity.

13.1. Performance of electrical work.

13.1.a. No electrical work shall be performed on low-, medium-, or high-voltage distribution circuits or equipment, except by a qualified electrician or by a person trained to perform electrical work and to maintain electrical equipment under the direct supervision of a qualified electrician. Disconnecting devices shall be locked out and suitably tagged by the person(s) who performs such work, except that in cases where locking out is not possible, such devices shall be open and suitably tagged by such person(s). They shall be removed only by the person(s) who installed them or if such person(s) is unavailable, by a qualified person authorized by the operator or his/her agent. Suitably tagged, as used in these sections, means that a sign such as, "Danger, Hands Off, Do Not Close, Men Working On Line", shall be attached to the locked switches. The signs or tags shall bear the name and date of the person(s) who installed the tag. Keys used to lock out switches shall be kept only on the person(s) who is performing the work on the equipment. Such locks shall be provided by the operator.

13.1.b. All power circuits and electrical equipment shall be de-energized before work is performed on such circuits and equipment, except when necessary for troubleshooting or testing.

13.1.c. All wiring and equipment installed shall meet the requirements of the National Electric Code (NEC) at the time installed. After the effective date of this rule, documentation is to be maintained to establish dates of new installations.

13.2. Transformers.

13.2.a. All surface transformers, unless of the construction which will eliminate shock hazard, or unless installed at least eight (8) feet above ground, shall be enclosed in a house or surrounded by a fence at least six (6) feet high. If the enclosure is of metal, it shall be grounded effectively, and the gate or door to the enclosure shall be kept locked at all times, unless authorized persons are present.

13.2.b. Transformers shall be provided with adequate overload protection.

13.2.c. "Danger–High Voltage" signs with voltage indicated shall be posted conspicuously at all transformer enclosures, high potential switch boards, and other high potential installations.

13.3. Electrical equipment generally.

13.3.a. Capacitors used for power factor connections shall have suitable drain off resistors or other means to protect workers against electrical shock following removal of power.

13.3.b. Dry wooden platforms, insulating mats, or other electrical nonconductive materials shall be kept in place at all switchboards and power-control switches where shock hazards exist. However, metal plates on which a person normally would stand and which are kept at the same potential as the grounded, metal, non-current-carrying parts of the power switches to be operated may be used.

13.3.c. Reverse current protection shall be provided at storage battery charging stations to prevent the storage batteries from energizing the power circuit in the event of power failure.

13.3.d. 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.

13.3.e. All electrical connections or splices and conductors shall be mechanically and electrically efficient and suitable connectors shall be used. All electric connections or splices and insulating wires shall be reinsulated at least to the same degree of protection as the remainder of the wire. Splices made shall provide continuity of all components.

13.3.f. High-potential electrical conductors shall be covered, insulated, or placed to prevent contact with low potential conductors.

13.3.g. All electrical equipment that is provided with switches or controls shall be safely designed, constructed, and installed.

13.3.h. Single phase loads shall be connected phase-to-phase when connected to resistance grounded systems.

13.3.i. Each ungrounded conductor or telephone wire that leads underground and is directly exposed to lightning shall be equipped with suitable lightning arrestors of approved type within one hundred (100) feet of the point where the circuit enters the mine. Lightning arrestors shall be connected to a low resistance grounding medium on the surface and shall be separated from neutral grounds by a distance of not less than twenty-five (25) feet. Cables in rigid conduit or shielded are not considered directly exposed.

13.4. Testing maintenance and repair of electrical equipment.

13.4.a. All electrical equipment, except circuit breakers, shall be examined daily by a competent person to assure safe operating condition.

13.4.a.1. All electrical equipment shall be examined monthly, tested and properly maintained by a qualified electrician. All systems and controls for the emergency shutdown of equipment shall be tested at least monthly. When a potential dangerous condition is found on electrical equipment, such equipment shall be removed from service until the condition is corrected by a qualified electrician. A record of such examination and the action taken when the potentially dangerous condition is found shall be kept and made available to an authorized representative of the Director of the West Virginia Office of Miners' Health, Safety and Training and to all miners at such quarry.

13.4.b. Circuit breakers equipped with auxiliary tripping devices shall be tested and examined at least once each month by a qualified electrician and a record of such examination shall be kept for one (1) year and made available to an authorized representative of the Director and to the miners at such quarry. Circuit breaker tests shall include:

13.4.b.1. Breaking continuity of the ground check conductor where ground check monitoring is used;

13.4.b.2. Actuating all of the auxiliary protective relays; and

13.4.b.3. Visual observation of all components of the circuit breaker and its auxiliary devices. Such repairs or adjustments as are indicated by such tests and examination shall be carried out immediately.

13.4.c. Continuity and resistance of grounding systems shall be tested immediately after installation, repair, and modification, and annually thereafter. A record of the resistance measured during the most recent test shall be made available upon request by the Director or his duly authorized representative.

13.5. Circuit breakers.

13.5.a. Automatic circuit breaking devices or fuses of the correct type and capacity shall be installed so as to protect all electrical equipment and circuits against short circuit and overload. Three (3) phase motors on electrical equipment shall be provided with overload protection that will de-energize all three (3) phases in the event that any phase is overloaded. As used in this section, adequate current interrupting capacity requires that the fuse or circuit breaker is capable of interrupting the maximum short circuit current that the circuit may conduct without destruction to the device.

13.5.b. Electric equipment shall be provided with devices that will permit the equipment to be de-energized quickly in the event of an emergency.

13-5.c. One (1) circuit breaker may be used to protect two (2) or more branch circuits if the circuit breaker is adjusted to afford over-current protection for the smallest conductor.

13.5.d. All circuits used to power portable or mobile equipment 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 along with the power conductors and serve as a grounding conductor for the frames of all the electrical equipment supplied power from the circuit, except that the Director or his authorized representative may permit underground low and medium voltage circuits to be used underground to feed such stationary electrical equipment if such circuits are either steel armored or installed in grounded rigid steel conduit throughout their entire length. The grounding resistor, where required, shall be of the proper ohmic value to limit the ground fault current to twenty-five (25) amperes. 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.

13.5.e. Power circuits serving three (3) phase alternating current equipment serving portable or mobile equipment shall be protected by suitable circuit breakers of adequate interrupting capacities which are properly tested and maintained as prescribed by the Director. Such breakers shall be equipped with devices to provide protection against under voltage, grounded phase, short circuit and over current.

13.5.f. Disconnecting devices shall be installed at the beginning of branch lines in high voltage circuits and equipped or designed in such a manner that it can be determined by visual observation that the circuit is de-energized when the switches are open.

13.5.g. Circuit breakers and disconnecting switches shall be marked for identification.

13.5.h. Stationary and/or temporary electrical equipment shall not be moved while energized unless written approval is given by the Director.

13.6. Cables.

13.6.a. Cables and power wires including, but not limited to, telephone, communication and control wires, shall be insulated adequately and fully protected from physical damage. No cable will be hung in a manner which will damage the insulation or conductors.

13.6.b. Trailing cables shall be clamped to machines in a manner to protect the cables from damage and to prevent strain on the electrical connections.

13.6.c. Trailing cables shall be adequately protected to prevent damage by mobile equipment.

13.6.d. Short circuit protection for trailing cables shall be provided by an automatic circuit breaker or other no less effective device, approved by the Director, 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 and shall be labeled to show which unit they control.

13.6.e. Cable/cable couplers shall be constructed so that the ground check continuity conductor shall be broken first and the ground conductor shall be broken last when the coupler is being uncoupled and shall not be coupled or broken under load.

13.6.f. When two (2) or more trailing cables junction to the same distribution center, means shall be provided to assure against connecting the trailing cable to the wrong circuit breaker.

13.6.g. One temporary splice may be made in any portable trailing cable. Such trailing cable may only be used for the next twenty-four (24) hour period. 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 section, the term splice means a mechanical joining of one (1) or more conductors that have been severed.

13.6.h. When permanent splices in trailing cables are made, they shall be:

13.6.h.1. Mechanically strong with adequate electrical conductivity and flexibility;

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

13.6.h.3. Vulcanized or otherwise treated with suitable materials to provide flame-resistant qualities and good bonding to the outer jacket; and

13.6.h.4. Made in accordance with the manufacturer's specifications.

13.6.i. Trailing cables for medium voltage circuits shall include grounding conductors, a ground check conductor, and grounded metallic shields around each power conductor or a grounded metallic shield over the assembly, except that on equipment employing cable reels, cables without shields may be used if insulation is rated two thousand (2,000) volts or more.

13.6.j. Telephone and low-potential signal wire shall be protected, by isolation or suitable insulation, or both, from contacting energized power conductors or any other power source.

13.7. Grounding.

13.7.a. All metallic shields, armors and conduits enclosing power conductors shall be electrically continuous throughout and shall be grounded.

13.7.b. The attachment of grounding wires to other grounded power conductors will be approved if separate clamps, suitable for such purpose, are used and installed to provide a solid connection.

13.7.c. Metallic frame, casing, and other enclosures of electrical equipment that can become alive through failure of insulation or by contact with energized parts shall be grounded. Resistance Grounded Systems shall have a ground monitoring system to monitor continuously the grounding circuit to

assure continuity. The ground check circuit shall cause the circuit breaker to open when either the ground or pilot check wire is broken. Other, no less effective devices, may be approved by the Director or his authorized electrical representative, to assure such continuity.

13.7.d. In instances where single phase 110/220-volt circuits are used to feed electrical equipment, the only method of grounding that will be approved is the connection of all metallic frames, casings or other enclosures of such equipment to a separate grounding conductor which establishes a continuous connection to a grounded center tap of the transformer. In the case of 120-volt single winding transformers used to feed electrical equipment, the only method of grounding that will be approved is the connection of all metallic frames, casings and other enclosures of such equipment to a separate grounding conductor which establishes a continuous connection to a grounded center tap or a grounded leg of the transformer.

13.7.e. Where batteries are being charged without removing them from mobile equipment, or are sitting on wooden blocks, the frames of the machine or battery case shall be grounded to the grounded frame of the charger to prevent the machine from becoming alive through failure of insulation in the charger. All ground conductor connections shall be clamped or bolted connections.

13.7.f. All buildings and structures shall be earth grounded if they are constructed of metal. Also, any building or structures which could become alive with electrical energy shall be effectively grounded.

13.7.g. Guy wires from poles supporting high voltage power lines shall be securely connected to the system grounding medium or shall be provided with insulators rated at the highest voltage.

13.7.h. All 120/240 volt AC circuits used to power electrical devices used in wet locations shall be protected with ground fault circuit interrupting devices.

13.8. Energized lines generally.

13.8.a. All guy wires shall be marked or flagged when equipment is working in the area.

13.8.b. Energized power lines crossing an access road or work area shall be identified by warning signs visible from each direction. Warning signs shall include height if lines for clearance and made of reflective material. In no event shall any high voltage power line be installed less than fifteen (15) feet above ground, walkways, or working areas.

13.8.c. All equipment near energized power lines with the following voltages shall maintain the following clearances: 10 to 69,000–10 feet; 69,000 to 114,000–12 feet; 115,000 to 229,000–15 feet; 230,000 to 344,000–20 feet; 345,000 to 499,000–25 feet; 500,000 or more–35 feet.

13.8.d. All personnel, except those directly involved in the operation, shall stay clear of the equipment working near energized lines.

13.8.e. A person shall be designated to observe clearance of the equipment and give timely warning for all operations where it is difficult for the operator to maintain the desired clearance by visual means.

13.8.f. Movement of equipment; minimum distance for high voltage lines. When any part of any equipment operated on the surface of any quarry is required to pass under or by any energized high-voltage powerline and the clearance between such equipment and powerline is less than that specified above, such powerlines shall be de-energized or other precautions shall be taken to prevent contact with the powerlines.

13.8.g. De-energization of powerlines. Any overhead wire shall be considered to be an energized line unless and until the person owning such line or electrical utility authorities verifies that it is not an energized line and it has been visibly grounded.

13.8.h. If equipment comes in contact with an energized line, the operator shall stay in the equipment until notified by a qualified electrician or foreperson that the line is de-energized.

13.9. High voltage.

13.9.a. High voltage lines on the surface shall be de-energized, locked out, tagged out, and grounded as near the work area as possible before work is performed on them. Repairs may be permitted to energized surface high voltage lines, if such repairs are made by a qualified electrician in accordance with the procedures and safeguards including, but not limited to, a requirement that the operator of such quarry provide tests of, and maintain, protective devices used in making such repairs. No work shall be performed on any high voltage line on the surface which is supported by any pole or structure which also supports other high voltage lines until all lines supported on that pole are de-energized and grounded.

13.9.b. No high voltage line shall be regarded as de-energized for the purpose of performing work on it until it has been determined by a qualified electrician that such high voltage line has been de-energized and grounded. Such qualified electrician shall, by visual observation, determine that the connecting devices on the high voltage circuit are in open position and insure that each ungrounded conductor of the high voltage circuit upon which work is to be done is properly connected to the system grounding medium.

13.9.c. An energized high voltage line may be repaired only when the operator has determined that such repairs cannot be scheduled during period when the power circuit could be properly de-energized and grounded. Such repairs will be performed on power circuits with a phase-to-phase nominal voltage no greater than fifteen thousand (15,000) volts. The weather conditions shall be noted so that it would not interfere with such repairs or expose those persons assigned to such work to an imminent danger. The operator shall designate a person qualified to perform such work as the person responsible for carrying out such repairs. In order to insure protection for himself/herself and other interested persons assigned to perform such repairs from the hazards of said repairs, he/she must prepare and file with the operator: (1) a general description of the nature and location of the damage or defect to be repaired; (2) the general plan to be followed in making of such repairs; (3) a statement that a briefing of all qualified electricians assigned to make such repairs was conducted informing them of the general plan, their individual assignments, and the dangers inherent in such assignments; and (4) a list of proper protective equipment and clothing that will be provided, and (5) such other information as the person designated by the operator feels necessary to describe properly the means or methods to be employed in such repairs. All statements obtained by the operator shall be recorded and contain a notation of the time, date, location and general nature of the repairs.

13.9.d. When two (2) or more persons are working on an energized high voltage surface line simultaneously and anyone of them is within reach of another, such persons shall not be allowed to work on different phases or equipment with different potentials.

13.9.e. All persons performing work on energized surface high voltage lines shall wear protective rubber lineman's gloves, sleeves, and climber guards if climbers are worn. Protective rubber gloves shall not be worn wrong side out or without protective leather gloves. Protective devices worn by a person assigned to perform work on high voltage surface lines shall be worn continuously from the time he/she leaves the ground until he/she returns to the ground and if such devices are employed for extended periods, such persons shall visually inspect the equipment assigned him/her for defects before each use and in no case, less than twice each day.

13.9.f. All protective equipment used for work on energized high voltage surface lines that are required to be tested by the ASTM standards shall be electrically tested in accordance with ASTM standards.

13.9.g. Disconnecting or cutout switches on energized high voltage lines shall be operated only with insulated sticks, fuse tongs or pullers which are adequately insulated, maintained and tested to protect the operator from the voltage to which he/she is exposed. When such switches are operated, the person operating such devices shall wear protective rubber gloves.

13.9.h. No new additional circuits may be tied to a high voltage line when such line is energized.

13.9.i. Solely for purposes of grounding ungrounded high voltage power systems, grounded messenger wires used to suspend the cable of such system may be used as a grounding medium.

13.9.j. All high voltage circuits supplying portable, mobile or stationary equipment shall contain either a direct or derived neutral which shall be grounded through a suitable resistor at the source transformer and a grounding circuit originating at the grounded side of the grounding resistor shall extend along the power conductors and serve as a grounding conductor for the frames which receive power from that circuit. The grounding resistor shall be of the proper resistance value to limit the voltage drop in the grounding circuit external to the resistor to not more than one hundred (100) volts under fault conditions, the grounding resistor shall be rated for maximum volt current continuously and insulated from ground for a voltage equal to the phase-to-phase voltage of the system.

13.9.k. High voltage resistant grounded system serving portable or mobile equipment shall include a failsafe ground check circuit to monitor continuously the grounding circuit to assure continuity and the fail safe ground check circuit shall cause the circuit breaker to open when either the ground or pilot check wire is broken or other no less effective device approved by the Director or his authorized representative to assure such continuity.

13.9.l. High voltage multi-conductor cables used in resistant grounded systems shall be equipped with metallic shields around each power conductor with one (1) or more ground conductors having a total cross sectional area of not less than one-half (1/2) the power conductor and with an insulated internal or external conductor not smaller than #10 A.W.G. for the ground continuity check circuit.

13.10. Movement of electrical equipment.

13.10.a. Power centers, portable transformers, cable couplings and enclosures shall be de-energized before they are moved from one location to another. Except that when equipment powered by source other than such centers or transformers is not available, the Director may permit such centers or transformers to be moved while energized if he determines that such equivalent or greater hazard may otherwise be created and if they are moved under the supervision of a qualified electrician, and if such centers and transformers are examined prior to such movement by such person and found to be grounded by methods approved by an authorized representative of the Director and otherwise protected from hazard to the miner. A record shall be kept of such examination for one (1) year and made available to a representative of the Director upon request.

13.10.b. High voltage cables other than trailing cables shall not be moved or handled at any time while energized as permitted under this section.

13.10.c. Quarry operators shall require all people handling high-voltage energized portable trailing cables to wear approved and tested insulated workmen's gloves. All such protective equipment shall be furnished by the operator. Rated gloves used when handling energized portable trailing cables shall be electrically tested every thirty (30) days and a record of that test shall be kept for one (1) year and made available to a representative of the Director upon request. If straps or hooks are used, those straps and hooks shall be non-conductive and designed for that purpose.

13.10.d. Cables energized to potentials in excess of one hundred fifty (150) volts, phase-to-ground, shall not be moved with equipment unless sleds or slings, insulated from such equipment, are used. When such energized cables are moved manually, insulated hooks, tongs, ropes, or slings shall be used unless suitable protection for persons is provided by other means. This does not prohibit pulling or dragging of cable by the equipment it powers when the cable is physically attached to the equipment by suitable mechanical devices and the cable is insulated from the equipment in conformance with other standards in this part.

13.11. Other electrical apparatus or areas.

13.11.a. Ladders for electrical work shall be of nonmetal type.

13.11.b. No electrical machinery or apparatus shall have unguarded exposed energized parts.

13.11.c. Lighting plants shall be located so as not to obstruct or be a safety or health hazard to any part of the quarrying operation or miners.

13.11.d. Employees performing energized electrical work shall be provided with suitable personal protective equipment. All such protective equipment shall be furnished by the operator.

13.11.e. Rooms in which circuit breakers or controls are installed shall have two (2) separate and distinct travelable passageways, designated as escapeways, unless waived by the Director.

13.11.f. All lights with less than eight (8) feet overhead clearance shall be guarded. Lamp sockets shall be of a weatherproof type where they are exposed to weather or wet conditions that may interfere with illumination or create a shock hazard.

13.11.g. Electric lights or other approved methods of lighting shall be installed so that they do not come in contact with combustible materials, and the wires shall be supported by suitable insulators and fastened securely to the power conductors.

13.11.h. A ten (10) pound fire extinguisher shall be provided for each electrical installation.

13.11.i. Combustible materials shall not be stored in electrical rooms and transformer substations.

§56-20-14. Compressed Gases and Welding.

14.1. Handling and use of welding or cutting equipment generally.

14.1.a. The clothing of any person using any welding or cutting equipment in or about a quarry shall be reasonably free of petroleum products. When handling oxygen cylinders or apparatus, the use of oily hands or gloves is prohibited.

14.1.b. Compressed gases shall not be used under direct pressure from tanks or cylinders but must be used under reduced pressures not exceeding that recommended by the manufacturers.

14.1.c. At no time shall compressed air be directed toward a person when in use.

14.1.d. A suitable wrench designed for compressed tanks shall be in the possession of the person authorized to use the equipment.

14.1.e. Oxygen and gas cylinders and their contents shall be used solely for their intended purposes.

14.1.f. Only an approved type spark-lighter shall be used for lighting torches.

14.1.g. All welding and cutting equipment shall be continuously maintained in a safe condition.

14.2. Storage and use of compressed gas cylinders.

14.2.a. Cylinders shall be secured in an upright position while stored or in use (except as necessary for a short period of time while cylinders are being hoisted or carried). Valve protection caps shall be hand tight when cylinders are stored. The storage area shall be well ventilated, protected and at least twenty (20) feet from highly combustible materials such as oil or other flammables.

14.2.b. Signs at storage areas of cylinders shall be conspicuously posted, "Danger No Smoking, Matches or Open Flame", or similar type warning.

14.2.c. When storing oxygen cylinders and acetylene or other fuel gas cylinders, a minimum distance of twenty (20) feet or a noncombustible barrier at least five (5) feet high having a fire resistance rating of at least one-half (1/2) hour shall be maintained between the oxygen cylinders and other fuel gas cylinders.

14.3. Transportation of compressed gas cylinders.

14.3.a. When transporting cylinders, they shall be securely mounted with regulators removed, cylinder valves closed and protective valve caps replaced except in conformance with the following provisions:

14.3.a.1. Cylinders shall remain in a substantially constructed compartment while the gauges are attached and shall be secured against movement.

14.3.a.2. The substantially constructed compartment shall be designed specifically for the maintenance vehicles carrying it; the cylinders shall be secured against movement and be placed at no greater than a forty-five (45) degree angle.

14.3.a.3. The cylinder regulators, if not in enclosed compartments, shall be adequately covered to provide protection when regulators are left attached to cylinders.

14.3.a.4. The substantially constructed compartments shall be secured to the maintenance vehicle in such a manner to prevent the entire compartment from overturning at any time.

14.3.a.5. If the cylinders are being transported in closed compartments, the compartments shall be adequately ventilated, and all doors on the substantially constructed compartments shall be closed and secured when not in use.

14.3.a.6. Cylinders, gauges, hoses, connectors, valve stems and torches shall be checked for damage and proper fit immediately following transportation and prior to use.

14.3.a.7. The cylinder valves shall be in a shut-off position, and the hoses relieved of pressure when not in use and when being transported.

14.3.a.8. All substantially constructed compartments shall be approved by the Director or his authorized representative prior to initial use.

14.3.b. Gas cylinders shall not be transported on vehicles used to transport employees unless separate approved compartments are provided.

14.4. Welding preparations.

14.4.a. Person or persons assigned to use and work with welding and cutting tools shall be properly instructed of their uses and fully understand the danger of their misuse.

14.4.b. All persons welding, cutting, heating, brazing or soldering shall be provided with goggles or shields, gloves, safe type spark-lighter and proper torch tip cleaner.

14.4.c. Prior to welding, cutting, heating, brazing or soldering in areas likely to contain methane, an examination shall be made with an approved device. Examinations for methane shall be made immediately before and periodically during welding, cutting, heating, brazing or soldering and such work shall not commence or continue in air which contains one percent (1%) or more methane.

14.4.d. Welding operations shall be shielded when necessary and the area shall be well ventilated.

14.4.e. Fire watchers shall be used whenever welding, cutting, heating, brazing or soldering is performed at locations where a fire hazard exists.

14.4.f. Adequate fire protection shall be provided at the location where welding, cutting, heating, brazing and soldering is performed.

14.5. Acetylene welding.

14.5.a. Only approved apparatus such as torches, regulators, pressure reducing valves, hoses, back flow check valves and gas cylinders shall be used.

14.5.b. Back flow check valves shall be attached to the exhaust side of a regulator before using.

14.5.c. Repairs involving the pressure system of compressors, receivers, or compressed-air-powered equipment shall be prohibited until the pressure has been relieved from the part of the system to be repaired.

14.5.d. Gas cylinders shall be protected from contacting sparks, hot slag or flame during welding, cutting, heating, brazing or soldering.

14.5.e. Regulators shall be adequately attached to the cylinders before using their contents.

14.5.f. The cylinder valve shall be opened partially for an instant and then closed before connecting a regulator. Such person performing said act shall stand to one side (not in front) of the outlet when opening the cylinder valve.

14.5.g. When removing a regulator from a cylinder bottle valve, such valve shall be closed and the gas released from the regulator.

14.5.h. Empty cylinders shall be marked as such and removed from the work area.

14.5.i. Oxygen and acetylene tanks or cylinders or compressed gases shall be protected from power lines or energized electrical machinery or equipment. These tanks or cylinders shall be kept away from the place where the cutting is being done in order to prevent damage or accident and to prevent heat from affecting such tanks or cylinders.

14.6. Electrical welding.

14.6.a. All connections at the welding machine shall be checked before starting such operations.

14.6.b. The ground lead shall be adequately attached to the work.

14.6.c. Magnetic work clamps shall be free of adherent metal particles or splatter on contact surfaces.

14.6.d. Coiled welding cable shall be adequately separated to avoid serious overheating and damage to cable insulation.

14.6.e. The welding machine frame shall be grounded as specified by the current NEC.

14.6.f. The welding machine shall be free of leaks, cooling water, shielding gas and engine fuel.

14.6.g. Proper switches shall be provided for de-energizing the welding machine.

14.6.h. Electrode holders shall be located so they do not make electrical contact with persons, conducting objects, fuel or compressed gas cylinders. Energized electrode holders may be laid down or placed only in approved nonconductive trays or holders.

14.6.i. There shall be splice-free cables within ten (10) feet of the electrode holder.

14.6.j. The welding cable shall not coil or loop around parts of the welder's body.

14.6.k. When welding has ceased for any substantial period of time, all electrodes shall be removed from holders. Holders shall be located so that accidental contact cannot occur.

14.6.l. Where work permits, arc welders shall be enclosed by individual booths or non-combustible screens painted with a finish of low reflectivity such as zinc oxide or lamp black.

14.6.m. Any exposed wiring in the welding cable shall be reinsulated to the same degree as the original welding cable.

14.7. Safety hazards.

14.7.a. Welding, cutting, and burning shall be prohibited in areas containing combustible dust.

14.7.b. After welding operations, unattended areas shall be posted with warning signs to prevent workers from coming into contact with hot metals.

14.7.c. Welders shall report any equipment defect or safety hazard to his/her supervisor and discontinue welding until safety has been assured.

14.7.d. When welding machines are used to provide an external power source, the welding machine's 120/240 volt AC receptacles shall be provided with ground fault circuit interrupting protection.

14.8. Maintenance and repairs.

14.8.a. Cylinders, valves, couplings, regulators, hoses and apparatus shall be kept free from oil, dirt, greasy substances, and maintained in good condition.

14.8.b. Tests for leaks on hoses, valves, or gauges shall be made with a soft brush and soapy water or soap suds.

14.8.c. Welding machines, electrodes, and cables shall be examined weekly for wear and/or damage.

§56-20-15. Equipment.

15.1. Mobile equipment.

15.1.a. Immediately prior to the beginning of each working shift, all equipment except licensed vehicles subject to state highway inspection requirements shall be examined by the equipment operator or a mechanic if designated by the foreperson in charge of the operation daily for safety defects. The person performing such examination shall record his/her findings in ink or indelible pencil on a form approved by the Director; such form shall be given to the foreperson or his/her assistant within four (4) hours after the beginning of the start of the working shift. The person performing the above examination shall sign the report form and the foreperson receiving such form shall initial upon receipt. A record of all above such examinations shall be maintained for thirty (30) days and made available to an authorized representative of the Director and to the miners at the quarry.

15.1.b. Immediately prior to the beginning of each working shift, equipment operated by independent contractors in a quarry shall be examined by the equipment operator for safety defects, other than light duty vehicles subject to state inspection. The person performing such examination shall record his/her findings in ink or indelible pencil on a form approved by the Director; such form shall be signed by the person performing the examination and such form shall remain with the vehicle for thirty (30) days and upon request be made available to an authorized representative of the Director.

15.1.c. Imminent danger equipment defects shall be reported immediately to the foreperson and tagged out and corrected before the equipment is put into operation. The foreperson shall record the defect in the pre-shift book.

15.1.d. All mobile equipment shall be operated and maintained according to the manufacturer's instructions.

15.2. Operation of shovel, draglines, tractors, backhoes, loaders, etc.

15.2.a. No person(s) shall enter the work area of any mobile equipment until first making positive contact either audible or visual with the equipment operator(s). Equipment operators shall cease operating their equipment when any person is within such proximity as to be endangered.

15.2.b. At startup or anytime mobile equipment is stopped, other than during the normal work cycle, operators shall sound a signal distinguishable from the surrounding noise level such as a whistle, bell, horn or other approved device, before moving forward or backward, and all persons not in the clear shall respond immediately.

15.2.c. Equipment operators shall not leave their cabs without lowering all raised equipment to the ground.

15.2.d. When the equipment operator is present, he/she shall be notified before anyone else attempts to mount or dismount the equipment.

15.2.e. Persons shall not be permitted in the immediate vicinity of shovels, draglines, and backhoes unless in the line of duty.

15.2.f. Walkways and platforms on equipment shall be maintained in a safe condition and shall be equipped with safe handrails.

15.2.g. Equipment that revolves in a horizontal arc on a turntable shall have a minimum clearance of four (4) feet from the highwall or other obstructions.

15.2.h. Operators of shovels and draglines shall not leave their cabs to wet the digging brake or dog unless the master clutch is in the "Off" position. Operators of shovels and draglines shall have visual contact, when possible, with the person assigned to setting the digging brake or dog.

15.2.i. Operators shall not leave the cab of the shovel, dragline or crane without placing the controls into the "Off" position. If the power should fail, the controls shall be placed in the "Off" position.

15.2.j. All ropes shall be securely attached to the drum and the dipper by at least four (4) suitable wire rope clips or properly wedged. Drums shall have at least three (3) wraps of cable on at all times.

15.2.k. Riding a dipper or bucket shall be prohibited.

15.3. Maintenance and repairs.

15.3.a. All safety equipment on all machinery shall be maintained in a safe working condition.

15.3.b. Mobile and stationary equipment shall be maintained in a safe operating condition. Equipment in unsafe condition shall be removed from service immediately. Mine operators shall maintain equipment in a safe operating condition. Equipment operators shall exercise reasonable care in the operation of the equipment entrusted to them and shall promptly report defects known to them: Provided, if equipment has been taken out of service by being properly tagged out, the operator shall not be issued a violation under the provision of this section: Provided, however, such tag placed on such equipment shall indicate the date and time such equipment was removed from service. The person removing the equipment from service and tagging such equipment shall place his/her signature upon the tag.

15.3.c. Good housekeeping shall be practiced on all equipment. All equipment shall be cleaned as necessary to maintain the equipment reasonably free of combustible substances.

15.3.d. No persons shall work on a piece of mobile equipment in a raised position until it has been securely blocked in place.

15.3.e. No work shall be performed under machinery or equipment that has been raised until such machinery or equipment has been securely blocked in place.

15.3.f. While greasing or doing repair work on a boom of a shovel, dragline, or backhoe, the boom shall be lowered to a position whereby the work can be done from the ground or the workers shall use personal fall protection equipment. This does not apply on shovels, draglines, or backhoes that are equipped with safe handrails or ladders.

15.3.g. Dippers of buckets or shovels, draglines and backhoes shall be lowered for repairs.

15.3.h. Repairs or maintenance shall not be performed on equipment until the power is off and the equipment is blocked against motion, except where the movement of the machine or parts is necessary to make adjustment.

15.4. Warning devices, lights, brakes.

15.4.a. All mobile equipment shall be equipped with an approved automatic warning device which shall give a clearly distinguishable alarm when such equipment is in reverse. Any motor vehicle having an obstructed rear view shall have a reverse signal alarm audible above the surrounding noise level or the vehicle is backed up only when an observer signals that it is safe to do so.

15.4.b. Equipment such as forklifts, front-end loaders, tractors, dozers, and graders shall be provided with an approved audible warning device that can be controlled manually by the operator.

15.4.c. Lights shall be provided on both ends of equipment when equipment is being worked other than during daylight hours. Lights provided on equipment by manufacturers of said equipment shall be deemed adequate and in compliance with the rules. Also, lights shall be provided under other conditions such as fog, etc.

15.4.d. All braking systems installed on the equipment shall be maintained in functional condition. Service brakes shall be able to stop the equipment on the maximum grade the equipment travels. Parking brakes shall be able to hold the equipment stationary on the maximum grade the equipment travels. The service braking system using stored energy shall be equipped with a warning device that activates when the system energy drops below the manufacturer's specified minimum operating energy level.

15.5. Dump trucks and dumping.

15.5.a. Dump bodies of trucks shall be properly blocked when raised for any purpose except dumping of a load.

15.5.b. No person shall be permitted in or on the cargo space of dump trucks while being loaded.

15.5.c. No person shall be allowed in the cab of an off-road dump truck while the truck is being loaded with a power shovel, front-end loader, or backhoe unless the cab is shielded.

15.5.d. Truck cabs where rear vision is impaired shall be equipped with adequate rearview mirrors on both sides.

15.5.e. The bucket of an excavator, loader or shovel shall not be swung over the cab of a truck.

15.6. Equipment generally.

15.6.a. No equipment or machinery shall be altered or modified in a manner that reduces the level of safety.

15.6.b. Road maintenance equipment such as graders or other equipment normally used shall be equipped with readily visible flashing light(s).

15.6.c. All equipment, when equipped with a safety bar for automatic transmission, shall be set in locked position before the operator leaves the cab. Operators of dozers that are equipped with standard transmission shall lock the park brake, place the transmission in a neutral position, and lock the clutch in before leaving the cab. Safety bar levers for automatic transmissions shall be in working condition.

15.6.d. All steps, handrails, walkways and platforms on mining equipment shall be maintained in a safe condition.

15.6.e. Electrically powered mobile equipment shall not be left unattended unless the master switch is in the "Off" position. All operating controls shall be placed in neutral position and the brakes set or other equivalent precautions taken against rolling.

15.6.f. A tow bar or other approved device shall be used for towing equipment. A safety chain shall be used in conjunction with a tow bar.

15.6.g. All exhaust tail pieces shall be positioned and properly maintained to prevent carbon monoxide and other toxic fumes from entering an operator's compartment.

15.6.h. The grader shall travel in the direction of normal traffic except during grading operations in a local area.

15.6.i. Emergency stop switches shall be provided and maintained to quickly de-energize electrically powered mobile equipment engines in the event of an emergency. The switches shall be located in the operator's cab and also at a location accessible from ground level.

15.6.j. Electrical compartments in use on electrically powered mobile equipment shall be maintained free of dust, water, and oil accumulations. Electrical compartment panel doors shall be secured in a manner to prohibit unauthorized access.

15.6.k. Wheel covers (hubcaps) shall be provided for electric wheel motors, shall be maintained in good condition, and shall be adequately secured.

15.6.l. Steering apparatuses of all mobile equipment shall be maintained in a safe operating condition according to manufacturers' specification.

15.6.m. Each employee working in a quarry shall be required to wear seat belts in a vehicle where there is a danger of overturning and where roll protection is provided. Seat belts shall be worn by all drivers of trucks, 5-ton or greater, while operating their trucks at a quarry.

15.6.n. Machines with movable parts used at quarries which are capable of coming into contact with its operating controls or are capable of pinning the operator between the movable part and its controls shall be equipped with a panic bar or suitable mechanical means to prevent such contact or pinning of the operator.

15.7. Glass, doors and mirrors.

15.7.a. Cab windows of glass on equipment shall be safety glass or equivalent material with good visibility, in good condition, not broken or cracked to such extent that it can be felt, and kept clean.

15.7.b. All mobile equipment provided with a windshield shall be provided with windshield wipers, and such wipers shall be maintained in good operating condition.

15.7.c. All doors on mobile equipment shall be maintained in good operating condition.

15.7.d. Adequate mirrors shall be maintained on all mobile equipment. Mirror(s) provided on equipment by manufacturers of said equipment shall be deemed adequate and in compliance with the rules.

15.8. Guards.

15.8.a. Fan blades, shafts, gears, flywheels, coupling, and similarly exposed moving machine parts which may be contacted by persons shall be adequately guarded.

15.8.b. Guards installed on equipment to prevent accidental contact with moving parts shall:

15.8.b.1. Be of substantial construction;

15.8.b.2. Not have openings large enough to admit a person's hand;

15.8.b.3. Be firmly bolted or otherwise installed in a stationary position; and

15.8.b.4. Be of sufficient dimensions to exclude the possibility of bodily contact while in motion.

15.8.c. All floor boards shall be kept secured in place.

15.9. Operation of mobile equipment.

15.9.a. Mobile equipment operators shall have full control of the equipment while in motion and shall operate such mobile equipment safely.

15.9.b. The type of equipment and posted operating speeds shall be prudent and consistent with conditions of roadways, grades, clearance, visibility and traffic.

15. 9.c. All mobile equipment shall be completely stopped before a person gets on or off.

15.9.d. No person other than the operator shall be permitted to ride in or on equipment unless in the line of duty, and only then when adequate safe seating facilities are provided.

15.9.e. Cabs of mobile equipment shall be kept free of extraneous materials and adequately ventilated by mechanical means.

15.9.f. When necessary to protect the operator of the equipment, all rubber tired or crawler mounted self-propelled scrapers, front-end loaders, dozers, graders, and tractors that are used on quarries shall be provided with substantial falling object protective structures.

15.9.g. All rubber tired or crawler mounted self-propelled scrapers, front-end loaders, dozers, graders, and tractors, manufactured after January 1, 1969, shall be provided with roll over protective structures.

15.9.h. Equipment shall be operated only by persons trained in the use of and authorized to operate such equipment.

15.9.i. Operators of all equipment shall keep a reasonable safe distance from the edge of all vertical or abrupt excavations or fills.

15.10. Loads.

15.10.a. Equipment which is to be hauled shall be secured.

15.10.b. Any load extending more than four (4) feet beyond the rear of the vehicle body shall be marked clearly with a red flag.

15.10.c. Dump trucks shall be trimmed properly when they have been loaded higher than the confines of their cargo space.

15.10.d. No one shall be permitted to ride in or on equipment while it is being hauled.

15.11. Machinery.

15.11.a. All drive belts shall be adequately guarded if the whipping action from a broken belt could come into contact with a person.

15.11.b. Belt conveyors in locations where fire would create a hazard to personnel shall be provided with switches to stop the drive pulley automatically in the event of excessive slippage.

15.11.c. Walkways adjacent to conveyor belts not covered or equipped with protective railing shall be equipped with emergency stop switches or pull cords along the affected area.

15.12. Hand-held tools, power tools and safety devices.

15.12.a. Condition of tools. All tools, power tools and similar equipment shall be maintained in a safe condition.

15.12.b. Hand-held power tools shall be equipped with controls requiring constant hand or finger pressure to operate the tools or shall be equipped with a friction clutch or other equivalent safety device.

15.12.c. Adjustable, pipe, end and socket wrenches shall not be used when jaws are sprung to the point that slippage occurs.

15.12.d. Impact tools such as drift pins, wedges, and chisels shall be kept free of mushroomed heads.

15.12.e. The wooden handles of tools shall be kept tight and free of splinters or cracks and shall be kept tight in the tool.

15.12.f. Electric power operated tools shall be approved double-insulated or grounded type.

15.12.g. Only proper hoisting equipment shall be used for hoisting or lowering tools. The use of hoses or electric cords for such purpose is prohibited.

15.12.h. Pneumatic power tools shall be secured to the hose by some positive means to prevent the tools from becoming accidentally disconnected.

15.12.i. Safety clips or retainers shall be securely installed and maintained on pneumatic impact (percussion) tools.

15.12.j. The manufacturer's safe operating pressure for hoses, pipes, valves, filters, and other fittings shall not be exceeded.

15.12.k. All fuel powered tool engines shall cease operations while being refueled, serviced, or maintained.

15.12.1. When fuel powered tools are used in enclosed spaces, the applicable requirements for concentrations of toxic gases and use of personal protective equipment shall apply.

15.12.m. Only approved fuel containers shall be used, and such containers shall be safely stored.

15.12.n. All hand-held tools, power tools and safety devices shall be used in accordance with manufacturers' specifications.

15.13. Jacks.

15.13.a. The manufacturer's rated capacity shall be legibly marked on all lifting jacks and shall not be exceeded. All jacks shall be maintained and used in accordance with the manufacturers' specifications.

15.13.b. All lifting jacks shall have a positive stop to prevent over-travel.

15.13.c. Blocking. When it is necessary to provide a firm foundation, the base of the lifting jack shall be blocked or cribbed. Where there is a possibility of slippage of the metal cup or the jack, a wood block shall be placed between the cap and the load. Work shall not be performed under any machinery until the proper blocking is in place and, with the exception of a jack, tight.

15.14. Stationary grinding machines, protective devices.

15.14.a. Mechanically operated grinding wheels shall be equipped with safety washers, substantial retaining hoods or approved eye shields. Approved face shields shall be provided and located at the grinding location and shall be worn by persons when using the machine. Safety hoods (guards or flanges) shall be mounted so as to maintain proper alignment with the wheel, and shall be of sufficient strength to retain fragments of the wheel in the case of accidental breakage. All abrasive wheels shall be ring-tested before mounting to insure they are free from cracks or defects, and shall fit freely on the spindle and not be forced on.

15.14.b. Adjustable tool rests shall be set as close as required to manufacturers' specifications.

15.14.c. Grinding wheels shall be operated according to the specification of the manufacturer.

15.15. Tires and repairs.

15.15.a. A safety tire rack, cage, or equivalent protection shall be provided when inflating tires installed on split or rims equipped with locking rings or similar devices. Tires shall be deflated before repairs on them are started and means shall be provided to prevent wheel locking rims from creating a hazard during tire inflation. Different types and sizes of wheel rims in the same location shall be stored separately from each other.

15.15.b. Heat shall not be applied to lug bolts, rims or wheels while tires are inflated.

15.15.c. When work is being performed on models that are equipped with dual wheels, both tires must be deflated for heating lugs before repair work begins. Safe means shall be provided for removing rocks or other hazardous material caught between the dual tires.

15.15.d. No person shall be permitted in front of a tire being inflated either on or off equipment and persons engaged in inflating or deflating tires shall perform such work in an area isolated from other persons.

15.15.e. When fork lift trucks are used in mounting or transporting of tires, adequate means shall be taken to assure that tires are secured properly. No person shall be permitted to stand between the hub of a vehicle and fork lift truck when used to change a tire.

15.15.f. A clip-on-air chuck shall be provided at all tire airing stations. At least six (6) feet of air hose shall be provided between the valve stem and the inflation gauge.

15.15.g. All tires shall be maintained in a safe condition according to manufacturers' specifications. Any tire with a defect which could be a hazard to the safe operation of a vehicle or to other persons shall be replaced immediately.

15.16. Operating equipment on extreme slopes.

15.16.a. Prior to any equipment operating on an extreme slope, a meeting shall be conducted with the quarry operator, all persons involved in working on the extreme slope and a representative of the Director to develop a plan as to how the equipment operators shall work on the extreme slope safely.

15.16.b. When cable winching is utilized as the safeguard for operating equipment on extreme slopes, the operator shall follow the manufacturer's specifications and limitations of the mobile equipment, wire ropes, and all attachments.

15.16.c. When cable winching, the following requirements must be met:

15.16.c.1. The equipment being used to assist a dozer, or other equipment working on slopes, shall be of proper size and strength to provide adequate anchorage. The equipment providing anchorage shall be positioned to provide maximum stability.

15.16.c.2. The winch line assembly shall be of proper size and strength and properly maintained to provide safety for all equipment.

15.16.c.3. Winch cables used by equipment working on slopes shall be of proper size according to manufacturers' specifications.

15.16.c.4. Winch cables shall be secured to the winch assembly drum according to the manufacturers' specifications.

15.16.c.5. A minimum of three (3) wraps of winch cable shall remain on the drum at all times.

15.16.c.6. The live-end connection device used to secure the two (2) pieces of equipment together shall be of a design that minimizes the possibility of accidental disconnection. The connection device shall be of the proper strength for the duties performed and maintained in safe condition according to manufacturer's specifications.

15.16.c.7. All winch cables shall be securely fastened to the live-end connection device by the proper number of wire-rope clamps or properly wedged according to the manufacturer's specifications.

15 16.c.8. All components of the winch line assembly shall be inspected by the equipment operator periodically during daily operations.

15.16.d. Constant communications either audible or visual shall be maintained between equipment operators while working on extreme slopes. No one shall work on an extreme slope alone.

§56-20-16. Installations.

16.1. Installations generally.

16.1.a. All quarry structures, enclosures, and other facilities shall be maintained in good condition.

16.1.b. In unusually dusty locations, electric motors, switches and controls shall be of dust-tight construction or enclosed with reasonable dust-tight housings or enclosures.

16.1.c. Openings in installations through which persons or material may fall shall be protected by railings, barriers, covers or other protective devices.

16.1.d. Illumination sufficient to provide safe working conditions shall be provided in and on all structures, paths, walkways, switch panels, loading and dumping sites, working areas and parking areas.

16.1.e. Materials shall be stored and/or stacked in a manner to prevent stumbling or falling.

16.1.f. Good housekeeping shall be practiced in and around all plants. Such practices include cleanliness, orderly storage of materials, and the removal of possible sources of injury, such as stumbling hazards, protruding nails and broken glass.

16.1.g. Adequate ventilation shall be provided.

16.1.h. A person entering a bin, tank or other dangerous area shall wear a full body harness that is tethered to a lifeline. A person shall continuously tend the lifeline from outside the bin, tank or other dangerous area.

16.1.i. When entering such areas, a competent person will determine if the need for atmospheric monitoring is necessary.

16.2. Machinery guards.

16.2.a. Gears, sprockets; chains, drive, head, tail and take-up pulleys; flywheels; couplings; shafts; saw blades; fan inlets; and similar exposed moving machine parts which may be contacted by persons, shall be guarded adequately.

16.2.b. Except when testing is necessary, machinery guards shall be secured in place while being operated.

16.2.c. Belt rollers shall not be cleaned while belts are in motion.

16.3. Ramps and dumping.

16.3.a. Both sides of any dumping ramp shall be provided with adequate berms or barriers.

16.3.b. Adequate berms or barriers shall be installed at all dumping points, excluding stockpiles.

16.3.c. Adequate protection, including but not limited to signage, barricades or warning devices, shall be provided at dumping locations where persons may be endangered by falling material. Operator stations and workers shall be protected from hazards by distance, guarding, location, construction, etc.

16.3.d. Dust control measures shall be taken where dust significantly reduces visibility of equipment operators.

16.3.e. All power lines in dumping areas shall be maintained at least a minimum of twelve (12) feet above the largest piece of equipment used at such facility, including a dump truck in a raised position.

16.3.f. All dumping ramps shall be of sufficient width to insure safe operation of vehicles used thereon.

16.3.g. At no time shall any person be permitted to enter into any crusher, bin, screen or hopper unless the equipment has been tagged out, de-energized, and locked out with a key or other approved adequate safeguards approved by the Director. Workers shall not dislodge material from operating crushers, except with aggregate or rock breakers of an approved design.

16.3.h. No person shall be permitted to perform any work within the confines of the cargo space of a crusher, feeder, or rotary breaker unless such equipment has been de-energized and locked out.

16.3.i. Ramps and dumps shall be of solid construction and have ample width, clearance and head room, and be kept reasonably free of accumulations of material and spillage.

16.4. Repairs of machinery.

16.4.a. Machinery shall not be lubricated while in motion, except where safe remote lubricating devices are used. Machinery that must be shut down for repairs or lubrication shall be locked out and tagged out to prevent accidental starting, and stored energy will be discharged, etc. Machinery shall not be re-started until the persons lubricating or repairing it have removed the lock and tag and all personnel are clear of the machinery.

16.4.b. Where repairs are made, proper scaffolding and proper overhead protection shall be provided for workers when necessary.

16.4.c. Where overhead repair work is being performed at surface installations, adequate protection shall be provided for all persons working or passing below.

16.5. Stairs, platforms, etc.

16.5.a. Stairways, elevated platforms and runways shall be equipped with handrails.

16.5.b. Elevated platforms shall be provided with toe boards. They shall be kept clear of refuse and ice and maintained in good condition.

16.5.c. Vertical clearance above stair steps shall be a minimum of seven (7) feet or suitable warning signs or similar devices shall be provided to indicate an impaired clearance.

16.6. Drive belts, etc.

16.6 a. Drive belts shall not be shifted while in motion unless such machines are provided with mechanical shifters.

16.6.b. Belt dressing shall not be applied while in motion.

16.6.c. Belts, chains and ropes shall not be guided onto power-driven moving pulleys, sprockets, or drums with the hand except equipment especially designed for hand feeding.

16.7. Conveyors, crossovers and crossunders.

16.7.a. When the entire length of a conveyor is visible from the starting switch, the operator shall visually check to make certain that all persons are in the clear before starting the conveyor. When the entire length of the conveyor is not visible from the starting switch, a positive audible or visible warning system shall be installed and operated to warn persons when the conveyor will be started.

16.7.b. Crossovers and crossunders shall be provided where necessary to cross conveyors. All crossovers and elevated crossunders shall be of substantial construction with rails and maintained in good condition. Moving conveyors shall be crossed only at designated crossover and crossunder points.

16.7.c. Pulleys of conveyors shall not be cleaned manually while the conveyor is in operation.

16.7.d. Guards, nets, or other suitable protection shall be provided where falling material from conveyor belts presents a risk of injury.

16.7.e. Where it is required to cross under a belt, guarding shall be installed to prohibit a person from making contact with a moving part. Guards shall not be required where the exposed moving parts are at least seven (7) feet away from walking or working surfaces.

16.7..f. Conveyors shall be locked out and tagged out before any work is performed within the confines of the belt. Conveyors shall not be re-started until locks and tags are removed.

16.8. Travelways.

16.8.a. Safe means of access shall be provided and maintained to all working places.

16.8.b. Travelways, platforms and other access to areas where persons are required to travel or work shall be kept free of all extraneous material and other stumbling or slipping hazards.

16.8.c. Inclined travelways shall be constructed of nonskid material or equipped with cleats.

16.8.d. Regularly used travelways shall be salted, sanded or cleared of snow and ice as soon as practical.

16.9. Ladders.

16.9.a. All ladders shall be secured against movement.

16.9.b. Ladders shall be of substantial construction and maintained in good condition.

16.9.c. Wooden ladders shall not be painted.

16.9.d. Fixed ladders shall not incline backward at any point unless equipped with backguards.

16.9.e. Fixed ladders shall be anchored securely and installed with at least three (3) inches of toe clearance. Permanent ladders more than ten (10) feet in height shall be provided with backguards.

16.9.f. Side rails of fixed ladders shall project at least three (3) feet above landings or substantial handholds shall be provided above the landing.

16.9.g. No person shall be permitted to work off of the top step of any ladder.

16.9.h. Metal ladders shall not be used with electrical work or where there is danger of the ladder coming into contact with power lines or an electrical conductor.

16.9.i. The maximum length of a step ladder shall be twenty (20) feet and an extension ladder sixty (60) feet.

16.10. Hoisting.

16.10.a. All persons shall remain a safe distance from any supplies or materials while being raised, lowered or in transit by a forklift, crane, or other equipment: Provided, That whenever it is necessary to have persons other than the equipment operator in the immediate vicinity of any such supplies, the loads shall be securely fastened by a chain or other device to the equipment handling the load in order to prevent the load from slipping or falling off the equipment.

16.10.b. Hitches and slings used to hoist materials shall be suitable for handling the type of material being hoisted.

16.10.c. Persons shall stay clear of hoisted loads.

16.10.d. Tag lines shall be attached to hoisted materials that require steadying or guidance. A hoist shall not lift loads greater than the rated capacity of the hoist being used.

16.11. Drawoff tunnels.

16.11.a. After the effective date of this article, all tunnels constructed shall include at least two (2) safe travelways to egress the tunnel. The safe travelways shall be at least thirty (30) inches in diameter or equivalent.

16.11.b. Tunnels located below stockpiles and storage silos shall be adequately ventilated by natural or mechanical means.

16.11.c. Communications or some other means of signaling shall be provided near the entrance to the escapeways in drawoff tunnels.

16.11.d. Tunnels shall be inspected on a regular basis for structural integrity. Tunnels found not structurally sound shall be removed from service until such time as the structural integrity has been restored.

16.12. Ventilation and methane where coal is stored and used.

16.12.a. Tests for methane in structures, enclosures, or other facilities where coal is stored shall be conducted with an approved methane detector or device at least once during each operating shift.

16.12.b. Methane content in surface structures. If, at any time, the air in any enclosure contains one percent (1.0%) or more of methane, changes or adjustments in the ventilation of such installation shall be made at once so that the air shall contain less than one percent (1.0%) methane.

16.12.c. Dust accumulation in surface installations. Coal dust on surface structures, enclosures, or other facilities shall not be permitted to exist or accumulate in dangerous quantities.

16.13. Railroad equipment.

16.13.a. Railroad cars shall be maintained under control at all times. Cars shall be dropped at a safe rate of speed and in such a manner that will insure that the car dropper maintains a safe position while working and traveling around the cars. The car dropper shall control the trip from one location and not drop more cars than can be controlled from such location. A car dropper shall not drop more than three (3) cars at one time with one (1) brake.

16.13.b. Railroad cars shall not be coupled or uncoupled manually from the inside of curves unless the railroad and cars are so designed to eliminate any hazard from coupling or uncoupling cars from inside curves.

16.13.c. No person shall ride the drawhead or coupler of a railroad car. No person other than the car dropper shall ride cars. No car dropper shall ride the end of a car about to be coupled with another car if other brakes are available.

16.13.d. Employees handling railroad cars shall have access to and use an approved distinct audible signaling device to give warning when cars are in motion. A car dropper shall get on or off a moving car only in case of an emergency.

16.13.e. Rail cars shall not be left on side tracks unless ample clearance is provided for traffic on adjacent tracks. Parked rail cars, unless held effectively by brakes, shall be blocked securely.

16.13.f. Railroad cars shall be trimmed properly when they have been loaded higher than the confines of their cargo space.

16.13.g. A minimum of thirty (30) inches continuous clearance from the furthest projection of moving railroad equipment shall be provided on at least one (1) side of the tracks; all places where it is not possible to provide thirty (30) inch clearance shall be marked conspicuously.

16.13.h. Roadbeds, rails, joints, switches, frogs, and other elements on railroads shall be designed, installed and maintained in a safe manner consistent with the speed and type of haulage.

16.13.i. Positive-acting stopblocks, derail devices, track skates, or other adequate means shall be installed where ever necessary to protect persons from runaway railroad equipment.

16.13.j. Switch throws shall be installed so as to provide adequate clearance for switchmen.

16.13.k. Where necessary, bumper blocks or the equivalent shall be provided at all track deadends.

16.13.l. Cars shall be inspected for broken steps, platforms and brake wheels and for defective brakes before dropping.

16.13.m. Equipment operating speeds shall be consistent with conditions of roadways, grades, clearance, visibility, traffic and the type of equipment used.

16.13.n. Fall protection shall be worn and properly attached by all car droppers handling railroad cars.

16.14. Railroad track construction and maintenance.

16.14.a. All parts of the track haulage road under the ownership or control of the operator shall be strictly constructed and maintained. Rails shall be secured at all points by means of plates or welds. When plates are used, plates conforming with the weight of the rail shall be installed and broken plates shall be replaced immediately. Appropriate bolts shall be inserted and maintained in all bolt holes. The appropriate number of bolts conforming with the appropriate rail plate for the weight of the rail shall be inserted, tightly secured, and maintained.

16.14.b. All points shall be installed and maintained so as to prevent bad connections. Varying weights of rail shall not be joined without proper adapters. Tracks shall be blocked and leveled and maintained so as to prevent high and low joints.

16.14.c. Tracks shall be gauged so as to conform with the track mounted equipment. Curves shall not be constructed so sharp as to put significant pressure on the trucks of the track-mounted equipment.

16.14.d. Severely worn or damaged rails and ties shall be replaced immediately.

§56-20-17. Facilities Using Coal Storage Bins; Recovery Tunnels; Coal Storage Piles.

17.1. Coal storage bins hereafter constructed with vertical sides fifty (50) feet or over in height shall be provided with ventilators or louvers or both to provide adequate ventilation. Where roofs are constructed over coal storage bins, adequate ventilation shall be provided by stacks, ventilators, louvers or mechanical means.

17.2. Where cutting or welding is performed at any location where coal is stored, means of prompt extinguishment of any fire accidentally started shall be provided, and the area where cutting or welding is performed shall be adequately watered down and/or rock dusted.

17.3. Extreme caution shall be exercised by all employees required to work at or near coal storage piles during coal recovery operations to avoid injury by coal slides or by being in or drawn into a chute.

§56-20-18. Fire Protection.

18.1. Fire extinguishers.

18.1.a. A portable fire extinguisher containing a nominal weight of at least five (5) pounds shall be kept on each piece of mobile equipment. This requirement is also applicable to mobile equipment equipped with fire suppression systems.

18.1.b. All portable fire extinguishers on equipment shall be properly secured.

18.2. Flammable liquids.

18.2.a. Flammable liquids, such as oil, grease, gasoline and such other like materials, shall be stored in buildings, compartments or closed containers used for this purpose only.

18.2.b. The storage of gasoline, oil, or other fuels, other than that which is in the fuel tank, shall be prohibited on any piece of equipment except for diesel equipment using gasoline starting engines; in this instance, one (1) extra gallon of gasoline in an approved safety can (flash arresting screen with self-closing lid) may be stored on the equipment securely fastened in a location on the equipment out of the way of moving objects.

18.2.c. Flammable liquids shall not be used to clean machinery.

18.2.d. Combustible materials, grease, lubricants, paints, flammable liquids, shall not be permitted to accumulate where fire hazards exist.

18.2.e. Waste or rags containing flammable or combustible liquids that could create a fire hazard shall be placed in the following containers until disposed of properly:

18.2.e.1. *Surface*–covered metal containers or equivalent containers with flame containment characteristics.

18.2.e.2. *Underground*–covered metal containers.

18.2.f. Solvents shall not be used near an open flame or other ignition source, near any source of heat, or in an atmosphere that can elevate the temperature of the solvent above the flash point.

18.2.g. Small quantities of flammable liquids drawn from storage shall be kept in safety cans labeled to indicate the contents.

18.3. Fueling and storage.

18.3.a. Internal combustion engines, except diesels, shall be shut off and stopped before being fueled.

18.3.b. Areas surrounding flammable liquid storage tanks, electric substations and transformers shall be kept free from grass, dry weeds, underbrush, and other combustible materials, for at least twenty-five (25) feet in all directions.

18.3.c. Fuel lines on fuel storage tanks shall be equipped with valves to cut off fuel at the source and shall be located and maintained to minimize fire hazard.

18.3.d. Smoking and use of open lights are prohibited in all places in which flammable materials are stored and in other places where there is a fire hazard.

18.4. Maintenance of firefighting equipment. Firefighting equipment shall be continuously maintained in a usable and operative condition. Fire extinguishers shall be examined at least once every month. The date of such examination shall be recorded on a permanent tag attached to the extinguisher.

18.5. Warnings. Warning signs prohibiting smoking and open flames shall be posted where they can be readily observed in areas or locations where fire or explosion hazards exist.

18.6. Drills. Fire drills with various types of available fire-fighting equipment shall be held for employees at least once every six (6) months. A record of such fire drills shall be recorded and kept for a period of one (1) year.

18.7. Surface fan installations and mine openings.

18.7.a. On the surface, no more than one day's supply of combustible materials shall be stored within one hundred (100) feet of mine openings or within one hundred (100) feet of fan installations used for underground ventilation.

18.7.b. The one-day supply shall be kept at least twenty-five (25) feet away from any mine opening except during transit into the mine.

18.7.c. Dry vegetation shall not be permitted within twenty-five (25) feet of mine openings.

18.8. Use of fire underground. Fires shall not be lit underground, except for open-flame torches. Torches shall be attended at all times while lit.

18.9. Underground belt conveyors. Fire protection shall be provided at the head, tail, drive, and take-up pulleys of underground belt conveyors. Provisions shall be made for extinguishing fires along the beltline. Fire protection shall be of a type, size, and quantity that can extinguish fires of any class in their early stages which could occur as a result of the fire hazards present.

18.10. Firefighting, evacuation, and rescue procedures.

18.10.a. Firefighting procedures/alarms/drills.

18.10.a.1. Underground alarm systems.

18.10.a.1.A. Fire alarm systems capable of promptly warning every person underground, except as provided in subparagraph 18.10.a.1.B, shall be provided and maintained in operating condition.

18.10.a.1.B. If persons are assigned to work areas beyond the warning capabilities of the system, provisions shall be made to alert them in a manner to provide for their safe evacuation in the event of a fire.

18.10.a.2. Underground evacuation drills.

18.10.a.2.A. At least once every six (6) months, mine evacuation drills shall be held to assess the ability of all persons underground to reach the surface or other designated points of safety within the time limits of the self-rescue devices that would be used during an actual emergency.

18.10.a.2.A.1. The evacuation drills shall:

18.10.a.2.A.1.(a). Be held for each shift at some time other than a shift change and involve all persons underground;

18.10.a.2.A.1.(b). Involve activation of the fire alarm system (if installed); and

18.10.a.2.A.1(c). Include evacuation of all persons from their work areas to the surface or to designated central evacuation points.

18.10.b. At the completion of each drill, the mine operator shall record the date and the time the evacuation began and ended. Records shall be retained for at least one (1) year after each drill and made available to an authorized representative of the Director.

18.11. Underground rescue and firefighting operations. Following evacuation of a mine in a fire emergency, only persons wearing and trained in the use of mine rescue apparatus shall participate in rescue and firefighting operations in advance of the fresh air base.

18.12. Underground evacuation instruction.

18.12.a. At least once every twelve (12) months, all persons who work underground shall be instructed in the escape and evacuation plans and procedures and fire warning signals in effect at the mine.

18.12.b. Whenever a change is made in escape and evacuation plans and procedures for any area of the mine, all persons affected shall be instructed in the new plans or procedures.

18.12.c. Whenever persons are assigned to work in areas other than their regularly assigned areas, they shall be instructed about the escape way for that area at the time of such assignment. However, persons who normally work in more than one (1) area of the mine shall be instructed at least once every twelve (12) months about the location of escape ways for all areas of the mine in which they normally work or travel.

18.12.d. At the completion of any instruction given under this rule, the mine operator shall record the date that the instruction was given. Records shall be retained for at least one (1) year and made available to an authorized representative of the Director.

18.13. Battery-charging stations.

18.13.a. Battery-charging stations shall be ventilated with a sufficient volume of air to prevent the accumulation of hydrogen gas.

18.13.b. Smoking, use of open flames, or other activities that could create an ignition source shall be prohibited at the battery charging station.

18.13.c. Readily visible signs prohibiting smoking or open flames shall be posted at battery-charging stations.

18.14. Conveyor belt slippage.

18.14.a. Surface belt conveyors within confined areas where evacuation would be restricted in the event of a fire resulting from belt-slippage shall be equipped with a detection system capable of automatically stopping the drive pulley.

18.14.b. Underground belt conveyors shall be equipped with a detection system capable of automatically stopping the drive pulley if slippage could cause ignition of the belt.

18.14.c. A person shall attend the belt at the drive pulley when it is necessary to operate the conveyor while temporarily bypassing the automatic function.

18.15. Mine opening vicinity.

18.15.a. Surface buildings or other similar structures within one hundred (100) feet of mine openings used for intake air or within one hundred (100) feet of mine openings that are designated escape ways in exhaust air shall be:

18.15.a.1. Constructed of noncombustible materials; or

18.15.a.2. Constructed to meet a fire resistance rating of no less than one (1) hour; or

18.15.a.3. Provided with an automatic fire suppression system; or

18.15.a.4. Covered on all combustible interior and exterior structural surfaces with noncombustible material or limited combustible material, such as five-eighth (5/8) inch, type "X", gypsum wallboard.

18.16. Stationary diesel equipment underground. Stationary diesel equipment underground shall be:

18.16.a. Supported on a noncombustible base; and

18.16.b. Provided with a thermal sensor that automatically stops the engine if overheating occurs.

18.17. Preparation of pipelines or containers. Before welding, cutting, or applying heat with an open flame to pipelines or containers that have contained flammable or combustible liquids, flammable gases, or explosive solids, the pipelines or containers shall be:

18.17.a. Drained, ventilated, and thoroughly cleaned of any residue;

18.17.b. Vented to prevent pressure build-up during the application of heat; and

18.17.c. Filled with an inert gas or water, where compatible; or

18.17.d. Determined to be free of flammable gases by a flammable gas detection device prior to and at frequent intervals during the application of heat.

18.18. Underground shops.

18.18.a. To confine or prevent the spread of toxic gases from a fire originating in an underground shop where maintenance work is routinely done on mobile equipment, one of the following measures shall be taken: use of control doors or bulkheads, routing of the mine shop air directly to an exhaust system, reversal of mechanical ventilation, or use of an automatic fire suppression system in conjunction with an alternate escape route. The alternative used shall at all times provide at least the same degree of safety as control doors or bulkheads.

18.18.a.1. Control doors or bulkheads. If used as an alternative, control doors or bulkheads shall meet the following requirements:

18.18.a.1.A. Each control door or bulkhead shall be constructed to serve as a barrier to fire, the effects of fire, and air leakage at each opening to the shop.

18.18.a.1.B. Each control door shall be:

18.18.a.1.B.1. Constructed so that, once closed, it will not reopen as a result of a differential in air pressure;

18.18.a.1.B.2. Constructed so that it can be opened from either side by one person or be provided with a personnel door that can be opened from either side;

18.18.a.1.B.3. Clear of obstructions; and

18.18.a.1.B.4. Provided with a means of remote or automatic closure unless a person specifically designated to close the door in the event of a fire can reach the door within three (3) minutes.

18.18.a.1.C. If located twenty (20) feet or more from exposed timber or other combustible material, the control doors or bulkheads shall provide protection at least equivalent to a door constructed of no less than one-quarter (1/4) inch of plate steel with channel or angle-iron reinforcement to minimize warpage. The framework assembly of the door and the surrounding bulkhead, if any, shall be at least equivalent to the door in fire and air-leakage resistance and in physical strength.

18.18.a.1.D. If located less than twenty (20) feet from exposed timber or other combustibles, the control door or bulkhead shall provide protection at least equivalent to a door constructed of two (2) layers of wood, each a minimum of three-quarters (3/4) inch in thickness. The wood-

grain of one (1) layer shall be perpendicular to the wood-grain of the other layer. The wood construction shall be covered on all sides and edges with no less than 24-gauge sheet steel. The framework assembly of the door and the surrounding bulkhead, if any, shall be at least equivalent to the door in fire and air-leakage resistance and in physical strength. Roll-down steel doors with a fire-resistance rating of one and one-half (1-1/2) hours or greater, but without an insulation core, are acceptable: Provided, That an automatic sprinkler or deluge system is installed that provides even coverage of the door on both sides.

18.18.b.1. Routing air to exhaust system. If used as an alternative, routing the mine shop exhaust air directly to an exhaust system shall be done so that no person would be exposed to toxic gases in the event of a shop fire.

18.18.c.1. Mechanical ventilation reversal. If used as an alternative, reversal of mechanical ventilation shall:

18.18.c.1.A. Be accomplished by a main fan. If the main fan is located underground:

18.18.c.1.A.1. The cable or conductors supplying power to the fan shall be routed through areas free of fire hazards; or

18.18.c.1.A.2. The main fan shall be equipped with a second, independent power cable or set of conductors from the surface. The power cable or conductors shall be located so that an underground fire disrupting power in one (1) cable or set of conductors will not affect the other; or

18.18.c.1.A.3. A second fan capable of accomplishing ventilation reversal shall be available for use in the event of failure of the main fan.

18.18.c.1.B. Provide rapid air reversal that allows persons underground time to exit in fresh air by the second escapeway or find a place of refuge; and

18.18.c.1.C. Be done according to predetermined conditions and procedures.

18.18.d.1. Automatic fire suppression system and escape route. If used as an alternative, the automatic fire suppression system and alternate escape route shall meet the following requirements:

18.18.d.1.A. The suppression system shall be:

18.18.d.1.A.1. Located in the shop area;

18.18.d.1.A.2. The appropriate size and type for the particular fire hazards involved; and

18.18.d.1.A.3. Inspected at weekly intervals and properly maintained.

18.18.d.1.B. The escape route shall bypass the shop area so that the route will not be affected by a fire in the shop area.

18.19. Installations.

18.19.a. Fire protection.

18.19.a.1. Where cutting or welding is performed at any location, means of prompt extinguishment of any fire accidentally started shall be provided.

18.19.a.2. Adequate fire-fighting equipment, required by the West Virginia Office of Miners' Health, Safety and Training, shall be provided where fire hazard exists. At least two (2) exits shall be provided for every enclosed floor of plants constructed after the effective date of these rules.

18.19.a.3. Signs warning against smoking and open flames shall be posted so they can be readily seen in areas or places where fire or explosion hazards exist.

18.19.a.4. Smoking or open flame in or about surface structures shall be restricted to locations where it will not cause fire or an explosion.

18.19.a.5. In structures where compressed gases are piped through permanently installed fixtures, such fixtures shall be examined daily for leaks and damage. If leaks or damage to the fixtures are discovered, repairs shall be made immediately.

18.19.a.6. Open flame in or about surface structures shall be restricted to locations where it will not cause fire or an explosion.

§56-20-19. Protective Equipment and Clothing.

19.1. Eye and face protection.

19.1.a. Welders and helpers shall use adequate shields or goggles to protect their eyes and face.

19.1.b. All employees shall have approved goggles, shields or safety glasses and use the same where there is a hazard from flying particles or other eye and face hazards.

19.1.c. All eye and face protection in this section shall meet the standards of the American Standards Institute (ANSI) Z87.1-1968.

19.1.d. Suitable eye protection and cleaning materials shall be made available at each site.

19.2. Clothing.

19.2.a. Employees engaged in haulage operations and all other persons employed around moving equipment shall wear snug-fitting clothing.

19.2.b. Protective gloves shall be worn when material which may injure hands is handled. Gloves with gauntleted cuffs shall not be worn around moving equipment.

19.3. Hard hats and safety toed shoes.

19.3.a. Hard hats and safety toed shoes shall be worn by all persons while in or around a quarry.

19.3.b. All employees shall be required to wear hard hats, except in the following instances:

19.3.b.1. When operating mobile equipment with an enclosed cab, FOPS or ROPS.

19.3.b.2. When inside an enclosed structure, unless there is a possibility of head injury.

19.3.c. The hard hats required hereunder shall meet the specifications for such helmets as prescribed by ANSI Z89.1-1969.

19.3.d. Within ninety (90) days of the effective date of this rule, all hard hats shall be equipped with a minimum of twelve (12) square inches of reflective material.

19.4. Working around water.

19.4.a. A United States Coast Guard approved life jacket shall be worn where there is a danger of drowning.

19.4.b. A ring buoy with ninety (90) feet of rope attached shall be available where there is a danger of drowning.

19.5. Fall protection and fall arrest.

19.5.a. Fall protection or arrest systems shall be used when there is a danger of falling from a height of six (6) feet or greater.

19.5.a.1. Personal fall protection.

19.5.a.1.A. Personal fall protection shall consist of a full body harness; a safety belt is not permitted.

19.5.a.1.B. A shock absorbing lanyard, personal fall limiter or self-retracting lanyard shall be used.

19.5.a.1.C. Anchorage points shall be capable of withstanding five thousand (5000) pounds of force per worker.

19.5.a.1.D. Anchorage points shall be utilized as to limit the fall distance to less than six (6) feet or contact with a lower level.

19.5.a.1.E. All personal fall arrest equipment shall be utilized, maintained and inspected as per the manufacturer's specifications.

19.5.b. All other fall protection. Other fall protection and arrest systems may be utilized with approval of the Director.

19.6. Hearing protection. Hearing protection shall be provided by the operator.

19.7. Respiratory equipment; control of dust.

19.7.a. Miners exposed to hazardous gas, dust, fume, and mist inhalation shall wear permissible respiratory equipment.

19.7.b. Dust shall be controlled by the use of permissible dust collectors or other approved methods.

§56-20-20. First Aid Requirements – Quarries.

20.1. First aid stations and equipment.

20.1.a. Each operator of a quarry shall maintain a supply of first aid equipment which shall be available to workers at all times. First aid equipment shall be stored at a central location convenient for quick response to emergencies. Advanced first aid-training will consist of hands-on training and demonstration in the use, care, and maintenance of the first aid equipment stored at the quarry.

20.1.b. First aid equipment shall contain the following:

20.1.b.1. One (1) stretcher;

20.1.b.2. One (1) broken-back board, or approved combination stretcher;

20.1.b.3. Twenty-four (24) triangular bandages;

20.1.b.4. Eight (8) four-inch (4") bandage compresses;

20.1.b.5. Sixteen (16) two-inch (2") bandage compresses;

20.1.b.6. Twelve (12) one-inch (1") adhesive compresses;

20.1.b.7. Two (2) approved blankets;

20.1.b.8. Sterile sheets, disposable for burns;

20.1.b.9. Two (2) tourniquets;

20.1.b.10. Two (2) inflatable plastic leg splints;

20.1.b.11. Two (2) inflatable plastic arm splints;

20.1.b.12. Two (2) cold packs;

20.1.b.13. One (1) sterile water (1,000 ml);

20.1.b.14. Automatic External Defibrillator (AED);

20.1.b.15. Two (2) mask/face shields or masks and goggles combination meeting blood borne pathogen requirements;

20.1.b.16. Six (6) pairs of examination gloves;

20.1.b.17. Two (2) barrier devices with one-way valve for performing artificial ventilation and/or cardiopulmonary resuscitation (AV/CPR);

20.1.b.18. One (1) first aid book or manual that reflects the current recommended policies and procedures for dealing with emergencies which require first aid.

20.2. Proper storage of first aid supplies. All first aid supplies required to be maintained shall be stored in suitable sanitary, dust-tight, moisture proof containers. First aid supplies shall be accessible to the workers.

20.3. Emergency arrangements.

20.3.a. Each operator shall maintain a list that contains emergency telephone numbers along with the addresses of the local emergency services and any hospital that may provide service to the quarry.

20.3.b. Each operator shall have prior arrangements made with an ambulance service, or other emergency transportation facilities, for injured persons to be transported from the work site to a licensed physician, medical service, medical clinic, or hospital while people are actually employed at the operation.

20.3.c. Mine rescue teams for underground quarries. After the effective date of this rule, underground quarry operations within the quarry industry shall conform to 30 C.F.R. Part 49 or Title 48 Series 4 of the West Virginia Mining Laws, Rules and Regulations.

20.4. Emergency communications.

20.4.a. Each operator shall provide two-way communication at all times miners are present between all work sites at the quarry and an emergency communication center which may be at the quarry office or elsewhere at the quarry.

20.4.b. Each operator shall establish and maintain a direct two-way communication system from such emergency communication center at the quarry to the nearest point of medical assistance for use in an emergency. Except as hereinafter provided, such emergency communication system shall be by telephone. If telephone communication from the emergency communication center to the nearest point of medical assistance is not possible at any one quarry, the Director may allow by permit such communication

by radio transmission to any emergency assistance facility (e.g., state police, sheriff, local hospital) which has available the means of communication with the person or persons providing the requisite emergency medical assistance or transportation.

§56-20-21. First Aid Training.

21.1. At least seventy-five percent (75%) of employees per shift shall receive advanced first aid training. This training will be administered by an organization or individual recognized by the Director. This training shall include, but not be limited to: patient assessment, artificial respiration, CPR, control bleeding, and treat shock, wounds, burns and musculo-skeletal injuries. Existing employees will be trained within one (1) year of the effective date of this rule and retrained as required by the organization or individual that is conducting the training. The employee shall be paid regular wages, or overtime pay if applicable, for all periods of first aid training.

21.2. If a licensed Emergency Medical Technician (EMT) or equivalent (such as a paramedic or physician's assistant) is employed, then the EMT shall be recognized as meeting the requirements of subsection 21.1 and no other employee on that shift will be required to receive advanced first aid training. If more than seventy (70) employees are employed per shift, then the requirements of subsection 20.1 will be enforced unless an additional EMT is added. When the EMT option is utilized by the operator, EMT qualifications and supplies will be accepted as currently recommended by the Regional Education Service Agencies (RESA).

§56-20-22. Training.

22.1. Training will be provided in accordance with 30 C.F.R. Part 46 to include new miner training, newly hired experienced miner training, task training and annual refresher training. Training will be documented on a MSHA 5000-23 form or equivalent. This form shall be available to representatives of the Director upon request.

22.2. Job assignments to any miner. When a job assignment is given to any miner that he/she has not performed in the recent past, such inexperienced person, in the particular job assignment, shall be instructed in the hazards incident thereto and the law and rules relevant thereto prior to performing any duties in such new job assignment. When such job assignment includes the operation of equipment, the instruction shall include a supervised dry run. Instructions shall be given by a person(s) competent in the operation of the equipment as well as the hazards associated with quarry mining and shall include the proper use, function, testing, and maintenance of all safety features of the equipment. When the job assignment is related to a plan in effect at the quarry, the relevant portions of the plan shall be reviewed. A record shall be kept of such instruction and made available to a representative of the Director upon request.

§56-20-23. Quarry Map.

23.1. The operator shall maintain an updated quarry map and provide a copy to the West Virginia Office of Miners' Health, Safety and Training on or before the first day of March of each year. The map shall be an accurate and up-to-date map of the quarry, on a scale of not less than one hundred (100) nor more than five hundred (500) feet to the inch, at or near the quarry, in an area chosen by the operator, with a duplicate copy on file at a separate and distinct location, to minimize the danger of destruction by fire or other hazard. The map shall show:

23.1.a. Name and address of the quarry;

23.1.b. The property or boundary lines of the active areas of the quarry;

23.1.c. Contour lines passing through whole number elevations of the mineral being quarried. The spacing of such lines shall not exceed twenty-five (25) foot elevation levels, except that a broader spacing of contour lines may be approved by an authorized representative of the Director for steeply pitching minerals. Contour lines may be placed on overlays or tracings attached to quarry maps.

23.1.d. The general elevation of the mineral being mined and the general elevation of the surface;

23.1.e. Either producing or abandoned oil and gas wells and lines located on the quarry property;

23.1.f. The location and elevation of any body of water dammed or held back in any portion of the quarry: Provided, however, such bodies of water may be shown on overlays or tracings attached to the quarry maps;

23.1.g. All prospect drill holes that penetrate the mineral being mined on the quarry property;

23.1.h. All worked out and abandoned areas;

23.1.i. The location of railroad tracks and public highways leading to the quarry and quarry buildings of a permanent nature with identifying names shown;

23.1.j. Underground quarry workings underlying and within one thousand (1,000) feet of the active areas of the quarry;

23.1.k. The location and description of at least two (2) permanent base line points, and the location and description of at least two (2) permanent elevation bench marks used in connection with establishing or referencing quarry elevation surveys; and

23.1.l. The scale of the map.

23.2. Certification of quarry maps. Quarry maps shall be made or certified by an engineer or surveyor registered in the State of West Virginia.

23.3. Availability of quarry map.

23.3.a. The quarry map maintained in accordance with the provisions of Section 3, Article 26, Chapter 56 of the West Virginia Code shall be available for inspection by an authorized representative of the Director.

23.3.b. Surface quarries shall provide a copy of the annual map submitted to the West Virginia Department of Environmental Protection to the West Virginia Office of Miners' Health, Safety and Training.

§56-20-24. Air Quality.

24.1. Persons whose duties require them to use air quality testing devices shall be trained by the operator to assure their competence and a record that such training was given shall be kept on file by the operator for a period of one (1) year.

24.2. Each operator shall provide for the proper maintenance and care of the approved testing device(s) by a person trained in such maintenance, and before each shift, care shall be taken to insure that such device(s) are maintained according to manufacturers' recommendations. Air quality testing devices shall be calibrated according to manufacturers' recommendations and a record kept and made available to interested persons for a period of one (1) year.

24.3. Air quality.

24.3.a. Exposure monitoring. Dust, gas, mist, and fume surveys shall be conducted as frequently as necessary to determine the adequacy of control measures.

24.3.b. Oxygen deficiency. Air in all active workings shall contain at least 19.5 volume percent oxygen.

§56-20-25. Diesel Particulate Matter.

25.1. Limits on exposure.

25.1.a. A miner's personal exposure to diesel particulate matter (DPM) in an underground mine must not exceed an average eight-hour equivalent full shift airborne concentration of 160 micrograms of total carbon per cubic meter of air (160TCμg/m3).

25.1.a.1. If a mine requires additional time to come into compliance with the final DPM limit established in the rules due to technological or economic constraints, the operator of the mine may file an application with the Director for a special extension.

25.1.a.2. The mine operator must certify on the application that the operator has posted one (1) copy of the application at the mine site for at least thirty (30) days prior to the date of application and has provided another copy to the authorized representative of the miners.

25.1.a.3. No approval of a special extension shall exceed a period of one (1) year from the date of approval. Mine operators may file for additional special extensions provided each extension does not exceed a period of one (1) year. An application must include the following information:

25.1.a.3.A. Documentation supporting that controls are technologically or economically infeasible at this time to reduce the miner's exposure to the final DPM limit;

25.1.a.3.B. The most recent DPM monitoring results; and

25.1.a.3.C. The actions the operator will take during the extension to minimize exposure of miners to DPM.

25.1.a.4. A mine operator must comply with the terms of any approved application for a special extension, post a copy of the approved application for a special extension at the mine site for the duration of the special extension period and provide another copy to the authorized representative of the miners.

25.1.a.5. The mine operator must install, use, and maintain feasible engineering and administrative controls to reduce a miner's exposure to or below the DPM limit established in this section. When controls do not reduce a miner's DPM exposure to the limit, controls are infeasible, or controls do not produce significant reductions in DPM exposures, controls must be used to reduce the miner's exposure to as low a level as feasible and must be supplemented with respiratory protection.

25.1.a.5.A. Air purifying respirators must be equipped with the following:

25.1.a.5.A.1. Filters certified by NIOSH as a high efficiency particulate air (HEPA) filter;

25.1.a.5.A.2. Filters certified by as 99.97% efficient; or

25.1.a.5.A.3. Filters certified by NIOSH for DPM.

25.1.a.5.B. Non-powered, negative-pressure, air purifying, particulate-filter respirators shall use an R- or P-series filter or any filter certified by NIOSH for DPM. An R-series filter shall not be used for longer than one (1) work shift.

25.1.a.6. Rotation of miners shall not be considered an acceptable administrative control used for compliance with the DPM standard.

25.1.a.7. The mine operator must provide a confidential medical evaluation by a physician or other licensed health care professional (PLHCP), at no cost to the miner, to determine the miner's ability to use a respirator before the miner is required to be fit tested or to use a respirator at the mine. If the PLHCP determines that the miner cannot wear a negative pressure respirator, the mine operator must make certain that the PLHCP evaluates the miner's ability to wear a powered air purifying respirator (PAPR).

25.1.a.7.A. The mine operator must provide the miner with an opportunity to discuss his/her evaluation results with the PLHCP before the PLHCP submits the written determination to the mine operator regarding the miner's ability to wear a respirator. If the miner disagrees with the evaluation results of the PLHCP, the miner may submit within thirty (30) days additional evidence of his/her medical condition to the PLHCP.

25.1.a.7.B. The mine operator must obtain a written determination from the PLHCP regarding the miner's ability to wear a respirator, and the mine operator must assure that the PLHCP provides a copy of the determination to the miner.

25.1.a.7.C. The miner must be reevaluated when the mine operator has reason to believe that conditions have changed which could adversely affect the miner's ability to wear the respirator.

25.1.a.7.D. Upon written notification that the PLHCP has determined that the miner is unable to wear a respirator, including a PAPR, the miner must be transferred to work in an existing position in an area of the same mine where respiratory protection is not required. The miner must be transferred within thirty (30) days of the final determination by the PLHCP.

25.1.a.7.D.1. The miner must continue to receive compensation at no less than the regular rate of pay in the classification held by that miner immediately prior to the transfer.

25.1.a.7.D.2. Increases in wages of the transferred miner must be based upon the new work classification.

25.1.a.7.D.3. The mine operator must maintain a record of the identity of the PLHCP and the most recent written determination of each miner's ability to wear a respirator for the duration of the miner's employment plus six (6) months.

25.2. Test for compliance.

25.2.a. The operator will make records showing compliance with MSHA regulations in regard to this section available to the Director or authorized representative.

25.2.a.1. Diesel fuel.

25.2.a.1.A. Diesel fuel used to power equipment in underground areas must not have a sulfur content greater than 0.05 percent. The operator must retain purchase records that demonstrate compliance with this requirement for one (1) year after the date of purchase.

25.2.a.1.B. The operator must only use fuel additives registered by the United States Environmental Protection Agency in diesel powered equipment operated in underground areas.

25.2.b.1. Maintenance.

25.2.b.1.A. Any diesel powered equipment operated at any time in underground areas must meet the following maintenance standards:

25.2.b.1.A.1. The operator must maintain any approved engine in approved condition;

25.2.b.1.A.2. The operator must maintain the emission related components of any non-approved engine to manufacturer specifications; and

25.2.b.1.A.3. The operator must maintain any emission or particulate control device installed on the equipment in effective operating condition.

25.2.b.1.B. A mine operator must authorize each miner operating diesel-powered equipment underground to affix a visible and dated tag to the equipment when the miner notes evidence that the equipment may require maintenance in order to comply with the maintenance standards. The term "evidence" means visible smoke or odor that is unusual for that piece of equipment under normal operating procedures or obvious or visible defects in the exhaust emissions control system or in the engine affecting emissions.

25.2.b.1.C. A mine operator must ensure that any equipment tagged pursuant to this section is promptly examined by a person authorized to maintain diesel equipment, and that the affixed tag not be removed until the examination has been completed. The term "promptly" means before the end of the next shift during which a qualified mechanic is scheduled to work.

25.2.b.1.D. A mine operator must retain a log of any equipment tagged pursuant to this section. The log must include the date the equipment is tagged, the date the equipment is examined, the name of the person examining the equipment, and any action taken as a result of the examination. The operator must retain the information in the log for one (1) year after the date the tagged equipment was examined.

25.2.b.1.E. Persons authorized by a mine operator to maintain diesel equipment must be qualified, by virtue of training or experience, to ensure that the maintenance standards are observed. An operator must retain appropriate evidence of the competence of any person to perform specific maintenance tasks in compliance with those standards for one (1) year after the date of any maintenance, and upon request must provide the documentation to the authorized representative of the Director.

25.3. Engines.

25.3.a. Any diesel engine introduced into an underground area of a mine covered by this part after July 5, 2001, other than an engine in an ambulance or fire fighting equipment which is utilized in accordance with mine fire fighting and evacuation plans, must either:

25.3.a.1. Have affixed a plate evidencing approval of the engine pursuant to 30 C.F.R.; or

25.3.a.2. Meet or exceed the applicable particulate matter emission requirements of the United States Environmental Protection Agency.

25.3.b. For purposes of subdivision ~~26~~.3.a.:

25.3.b.1. The term "introduced" means any engine added to the underground inventory of engines of the mine in question, including:

25.3.b.1.A. An engine in newly purchased equipment;

25.3.b.1.B. An engine in used equipment brought into the mine; and

25.3.b.1.C. A replacement engine that has a different serial number than the engine it is replacing; but

25.3.b.2. The term "introduced" does not include engines that were previously part of the mine inventory and rebuilt.

25.3.b.3. The term "introduced" does not include the transfer of engines or equipment from the inventory of one underground mine to another underground mine operated by the same mine operator.

25.4. Training.

25.4.a. Mine operators must provide annual training to all miners at a mine covered by this section who can reasonably be expected to be exposed to diesel emissions on that property. The training must include:

25.4.a.1. The health risks associated with exposure to diesel particulate matter;

25.4.a.2. The methods used in the mine to control diesel particulate matter concentrations;

25.4.a.3. Identification of the personnel responsible for maintaining those controls; and

25.4.a.4. Actions miners must take to ensure the controls operate as intended.

25.4.b. An operator must retain a record at the mine site of the training required by this section for one (1) year after completion of the training.

25.5. Exposure monitoring.

25.5.a. Mine operators must monitor as often as necessary to effectively determine, under conditions that can be reasonably anticipated in the mine, whether the average personal full-shift airborne exposure to DPM exceeds the DPM limit specified in the MSHA standard.

25.5.b. The mine operator must provide affected miners with an opportunity to observe exposure monitoring required by this section. Mine operators must give prior notice to affected miners of the date and time of intended monitoring.

25.5.c. If any monitoring performed under this section indicates that a miner's exposure to diesel particulate matter exceeds the DPM limit specified in the current MSHA standard, the operator must promptly post notice of the corrective action being taken on the mine bulletin board, initiate corrective action by the next work shift, and promptly complete such corrective action.

25 5.d. Documentation.

25.5.d.1. The results of monitoring for diesel particulate matter, including any results received by a mine operator from sampling performed by MSHA or the West Virginia Office of Miners' Health, Safety and Training, must be posted on the mine bulletin board within fifteen (15) days of receipt and must remain posted for thirty (30) days. The operator must provide a copy of the results to the authorized representative of the miners.

25.5.d.2. The mine operator must retain for five (5) years (from the date of sampling) the results of any samples the operator collected as a result of monitoring under this section and information about the sampling method used for obtaining the samples.

25.5.e. Records and Retention. The operator must make available to the Director or authorized representative any records required to be retained by MSHA under the DPM standard.

§56-20-26. Independent Contractor Register.

26.1. All independent contractors as defined in subsection 3.42 of these rules shall register with the West Virginia Office of Miners' Health, Safety and Training within sixty (60) days of the effective date of these rules and receive a contractor identification number before performing services or construction work at quarries in this state. A one-time fee of fifty dollars ($50.00) will be required to register.

26.2. In the event the quarry-only independent contractor ceases working on quarry mine property, they shall notify the Director in writing within sixty (60) days.

26.3. The quarry-only independent contractor permit is for work performed at quarries only and does not include working on coal mine property.

26.4. To register, all independent contractors shall provide the West Virginia Office of Miners' Health, Safety and Training the following information on forms provided by the West Virginia Office of Miners' Health, Safety and Training:

26.4.a. The independent contractor's trade name, business address, and business telephone;

26.4.b. A general description of the nature of the work to be performed by the independent contractor; and

26.4.c. The independent contractor's address of record for service of citations or other documents involving the independent contractor.

26.5. If any of the above information changes, the independent contractor shall advise the West Virginia Office of Miners' Health, Safety and Training of such change within thirty (30) days.

26.6. Upon receipt of the above information, the West Virginia Office of Miners' Health, Safety and Training shall issue a contractor identification number. Prompt issuance of the contractor identification number shall not be unreasonably withheld.

26.7. Prior to performing work at the quarry, each independent contractor shall provide the production operator the information contained in subsection 26.4, along with his West Virginia Office of Miners' Health, Safety and Training contractor identification number.

26.8. Each production operator shall maintain in writing at the quarry the information required by subsection 26.7 for each independent contractor at the quarry. The production operator shall provide the above information to an authorized representative of the Director upon the beginning of any inspection.

§56-20-27. Service of Documents; Independent Contractors. Service of notices, orders, and other documents upon independent contractors shall be completed upon delivery to the independent contractor at the work site and mailed to the independent contractor's address of record. A copy of all notices, orders, and other required documents shall be posted on a conspicuous bulletin board at the work site.

§56-20-28. Address of Record and Telephone Number; Independent Contractors. The address and telephone number required under this section shall be the independent contractor's official address and telephone number for purposes of Chapter 22A of the West Virginia Code and these rules. Service of documents upon independent contractors may be proved by a certified mail return receipt showing that the documents were delivered to the address of record, or showing that the independent contractor is no longer at that address and has established no forwarding address because delivery was not accepted at that address, or that no such address exists. Independent contractors may request service by delivery to another appropriate address of record provided by the independent contractor.

§56-20-29. Enforcement of Citations and Orders.

29.1. These rules shall not be construed to limit the basic compliance responsibilities of production operators. Overall compliance responsibility of production operators shall include assuring compliance with the West Virginia Code provisions and rules which apply to the work being performed by independent contractors at the quarry.

29.2. It is the general enforcement policy of the West Virginia Office of Miners' Health, Safety and Training that the independent contractor will be held responsible for violations committed by the independent contractor or its employees where the production operator has complied with section 26 of these rules.

29.3. Enforcement action against production operators for violations which involve independent contractors may be taken by the West Virginia Miners' Health, Safety and Training where the production operator has contributed to the existence of a violation, or the production operator's miners are exposed to the hazard, or the production operator has control over the existence of the hazard.

29.4. A production operator may be properly cited for a violation of the rules involving an independent contractor where:

29.4.a. The production operator has contributed by either an act or an omission to the occurrence of a violation in the course of an independent contractor's work, or

29.4.b. The production operator has contributed by either an act or omission to the continued existence of a violation committed by an independent contractor, or

29.4.c. The production operator's miners are exposed to the hazard, or

29.4.d. The production operator has control over the condition that needs abatement.

29.5. In addition to the provisions of section 29.4 of these rules, the production operator may also be required to assure continued compliance with the West Virginia Code and rules applicable to an independent contractor at the quarry until the contractor is fully able to assume compliance responsibility.

29.6. Whenever a mine inspector finds a violation or imminent danger in an area where an independent contractor is operating, such inspector shall make a determination whether to issue the appropriate Notice of Violation or order to either the production operator or the independent contractor, or both, based upon the criteria set out in sections 29.2 and 29.3 of these rules.

29.7. In instances where the work performed will last five (5) days or less at quarry operations, an independent contractor's identification number will not be required. No more than five (5) days work in a calendar year will be allowed without obtaining a contractor identification number issued by the West Virginia Office of Miners' Health, Safety & Training.

29.8. Independent contractors working at quarries shall comply with Title 56, Series 8 of the West Virginia Administrative Rules.

§56-20-30. Construction. After the effective date of this rule, construction operations within the quarry industry shall conform to Occupational Safety and Health Administration (OSHA) regulations (29 C.F.R. Part 1926) in effect at the time of construction.

§56-20-31. Assessment of Quarry-Related Violations.

31.1. The procedures found in Title 56, Series 1 shall govern the assessment of quarry-related violations.

31.2. All civil monetary penalties assessed by the Director, pursuant to Section 21, Article 1, Chapter 22A of the West Virginia Code, for quarry-related violations shall be not less than twenty-five percent (25%) nor greater than fifty percent (50%) of the value assessed against coal mines.

31.3. The civil monetary penalty for individual personal assessments shall not be more than two hundred fifty dollars ($250.00) for each occurrence of the violation.

TABLE 1

(See page 19, Subdivision 9.4.b.)

Transmitter Power (Watts) (except FM mobile)	Minimum Distance (Feet)
5 - 25	100
25 - 50	150
50 - 100	220
100 - 250	350
250 - 500	450
500 - 1000	650
1000 - 2500	1000
2500 - 5000	1500
5000 - 10000	2200
10000 - 25000	3500
25000 - 50000	5000
50000 - 10000	7000

Transmitter Power (Watts) (FM mobile)	Minimum Distance (Feet)
1 - 10	5
10 - 30	10
30 - 60	15
60 - 250	30