ALABAMA DEPARTMENT OF WORKFORCE
ADMINISTRATIVE CODE

CHAPTER 480-3-4
OPEN PIT AND QUARRY

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480-3-4-.01 Tunnels.

In every open pit or quarry where underground tunneling or mining operations are conducted, such underground tunneling or mining operations, except when Alabama coal mining laws are applicable,

shall comply with the Rules and Regulations for mines other than coal mines of the State of Alabama.
Author: Department of Industrial Relations
Statutory Authority: Code of Ala. 1975, § 25-2-2(3)
History: Prior to October 1, 1982, this regulation was designated as General Rule 1.

480-3-4-.02 Quarry Banks.

(1) Guards

(a) Excavations shall be provided with substantial railings, at points where passageways, tracks, roadways or buildings adjoin such excavations.

(2) Loose Material

(a) All quarry walls shall be kept free of unsafe loose materials. Unsafe overhanging material shall not be permitted.

(3) Lifts

(a) No person shall be permitted to attach block chains to a lift, or drill, load or do any work about a working face until such working face has been personally examined by the pit or quarry foreman or his assistant. If the working face is found unsafe, it shall be made safe by workmen under the personal supervision of the pit, quarry or blaster foreman before permitting other men to commence work.

(4) Scaling

(a) All walls where men are in danger shall be thoroughly scaled at least once each week, after heavy rain, after each heavy shot has been fired and after each freeze and thaw. When rock walls are smooth with little or no fracturing and not subject to open joints or presence of seams of clay or inferior rock, and past experience has proved that alternate freezing and thawing, heavy rains and heavy blasting are not productive of rock falls, this requirement shall not apply. In such cases, the superintendent of the quarry, or the foreman in charge of this kind of work, shall make frequent inspections of the face of the quarry and of the overburden below which men are employed and shall cause to be dislodged any slabs of rock, or boulders that make working conditions unsafe below. Scaling of quarry walls or pit banks from skips or mechanical shovel or crane buckets operated by hoisting machinery shall be prohibited.

(5) Benching

(a) In all quarries or pits where churn or well drilling is not employed, except building stone quarries, a bench or set back of at least ten (10)feet shall be made for every forty (40)feet or less of depth excavated. All benches shall be kept free from unsafe loose material.

(6) Trimming Bars

(a) Trimming bars, extension ladders and safety ropes shall be provided, where necessary, and maintained in good condition for the trimming of loose rock from the quarry edge.

(7) Slope of Material

(a) Rock piles shall be kept safely sloped during loading operations.

Author: Department of Industrial Relations
Statutory Authority: Code of Ala. 1975, § 25-2-2(3)
History: Prior to October 1, 1982, this regulation was designated as General Rule 2.

480-3-4-.03 Safe Means Of Access.

(1) Access

(a) Safe means of access shall be provided to all working places in any pit or quarry.

(2) Wooden ladders constructed as follows shall be accepted in lieu of iron or steel or combination iron and steel and wood ladders.

(a) Ladders

1. Stringers of ladders shall be built of not less than two by four (2 x 4)inch sound lumber or its equivalent.

(b) Rungs

1. The distance between the centers of the rungs of the ladder shall not exceed twelve (12)inches and shall not vary more than one (1)inch in any ladderway. The length of the ladder rungs (width of ladder)shall not be less than ten (10)inches between the stringers.

2. The back side of the rungs of the ladder shall in no case be less than six and one-half (6 1/2)inches from any obstruction.

3. Wooden ladder rungs shall be set flush with the outer surface of the stringers.

(g) Ladderways having an inclination of more than seventy (70) degrees from the horizontal and where the distance between the top and bottom of the ladderway is more than thirty (30) feet, shall have substantial platforms at intervals of not more than thirty (30) feet. If possible, the sections of the ladder shall be staggered at each platform so that no section shall be directly in line with the section above or below it. Ladders shall project at least three and one-half (3 1/2) feet above every platform or landing in the ladderway. All fixed ladders used to gain access to elevated places in pits or quarries shall be of sufficient length to extend at least three and one-half (3 1/2) feet above the landing and the top of the ladder shall be firmly secured to the ledge to prevent slipping.

(4) All fixed ladders shall be securely fastened.

(5) Under no circumstances shall any ladder inclining backward from the vertical be installed or used.

(6) Maintenance

(a) Ladderways shall be maintained in safe condition and shall be inspected regularly.

(7) Steps

(a) Where stairs are used they shall comply with the requirements set forth in the Basic Safety Manual, State of Alabama.

(8) Travel

(a) Access to pits or quarries over railway haulage shall be prohibited while trains or cars are being operated over such tracks.

(9) Walkway

(a) Where access to pits or quarries is by walkway, it shall be properly graded, and if travel along the walkway is unsafe by reason of danger of falling into the pit the walkway should be protected by hand rails; drain ditches shall be laid out and both walk and drain ditches shall be kept free of broken stone, trash, and debris at all times.

All means of access shall be maintained in a safe and serviceable condition, free of rot and mold and clear of oils, grease, mud and other slippery materials. In cases where slippery materials are constantly being deposited on stairs and ladders, coarse sand or equivalent material shall be applied to improve traction.

(10) After safe and adequate means of descent and ascent in quarry and pit excavations have been provided for, strict rules shall be made prohibiting workmen from using any other means than those provided.
Author: Department of Industrial Relations
Statutory Authority: Code of Ala. 1975, § 25-2-2(3)
History: Prior to October 1, 1982, this regulation was designated as General Rule 3.

480-3-4-.04 Overburden.

(1) The overburden shall be stripped to firm material to provide a bench the width of which shall equal the depth of the overburden.

(2) In case of side hill quarries, the overburden shall be removed a sufficient distance from the face of the quarry to make it safe.
Author: Department of Industrial Relations
Statutory Authority: Code of Ala. 1975, § 25-2-2(3)
History: Prior to October 1, 1982, this regulation was designated as General Rule 4.

480-3-4-.05 Protection Around Quarry Openings.

The walls of every pit or quarry and the opening around same at the bottom of which persons usually pass or are regularly engaged in work and are in danger from slides or falls of material, shall be periodically inspected and the necessary precautions taken to protect the workmen.
Author: Department of Industrial Relations
Statutory Authority: Code of Ala. 1975, § 25-2-2(3)
History: Prior to October 1, 1982, this regulation was designated as General Rule 5.

480-3-4-.06 Sand And Gravel Excavations.

(1) Slope

(a) Sand and gravel excavations or excavations in other unconsolidated material shall be kept sloped at all times. The slope shall not exceed an angle of sixty (60)degrees from the horizontal. If at any time the gravel or sand, or any section of the bank, approaches an angle exceeding sixty (60)degrees from the horizontal, means shall be taken immediately to reduce the slope by caving. Overhangs at the top of the bank shall be barred or shot down as fast as developed.

(2) When excavating with mechanical shovels or cranes, the face may be worked to a height not to exceed twice the reach of the shovel or crane without caving to reduce the slope; provided, however, that employees shall not be permitted to work or expose themselves within ten (10) feet of such bank for every twenty (20) feet of height until the face has been sloped as required above.

(3) During caving operations no employee shall be permitted to expose himself directly in front of the section to be caved.
Author: Department of Industrial Relations
Statutory Authority: Code of Ala. 1975, § 25-2-2(3).
History: Prior to October 1, 1982, this regulation was designated as General Rule 6.

480-3-4-.07 Life Lines And Belts.

(1) The owner, operator, or superintendent of each pit or quarry shall provide and maintain sufficient safety belts and life lines for all persons requiring them. In pits or quarries that have been excavated to a depth of twenty (20) feet or more, all persons employed on ledge operations where the footing is not secure shall be required to use life lines and safety belts. Nothing in this rule shall be construed to prohibit the use of the life line as a belt.

(2) In every side hill quarry where persons are permitted or required to do work such as drilling, blasting, and scaling on steep side hill operations, the owner, operator, or superintendent shall provide safety belts and life lines for all persons so employed under dangerous conditions as hereinafter described. Whenever life or limb is in danger, persons so employed shall be required to use such safety belts and life lines in the performance of such operations. One end of the life line must be firmly secured or held at the top of the wall or bank. Failure or refusal by an employee to comply with this requirement shall be deemed a violation of these regulations.

(3) At all crushers, murking platforms, feed hoppers, or bins, on or in which persons are required or permitted to work, life belts and life lines shall be provided and used. Life lines shall be of such length as will prevent the persons using them from being drawn into the jaws of the crusher or from being caught, injured, or buried by a sudden rush of material. Life lines shall be securely fastened and shall be easily accessible from any point of such platform. The life lines and safety belts shall be used when necessary for the person or persons to descend into the feeding hopper or bin, or when material is barred from the car or skip.

(4) Life Line Protection

(a) When there exists a fraying or shearing hazard to a life line, it shall be properly protected or rounded off to prevent damage to the life line.

Author: Department of Industrial Relations
Statutory Authority: Code of Ala. 1975, § 25-2-2(3)
History: Prior to October 1, 1982, this regulation was designated as General Rule 7.

480-3-4-.08 Haulage And Hoisting.

(1) All hoisting equipment used on slopes and inclines shall be of ample capacity and of a design commercially recognized as safe.

(2) Hoists

(a) The drums or cable reels of hoist shall be provided with flanges that extend not less than two (2)inches radially beyond the outer layer of rope when the rope is fully wound on the drum or reel.

(b) All hoists shall have sufficient power to hoist the loaded unbalanced skip, car, trips of cars or vertically suspended load and shall be equipped with brakes adequate to stop and hold the fully loaded skip, car, trip of cars or vertically suspended load at any point on the slope, incline or hoisting range.

(3) Indicators

(a) All hoists shall be provided with indicators that plainly show the engineer or hoistman the position of the skip, car or cars on the incline or slope at all times, unless such engineer has full view of the load throughout the length of the slope or incline.

(4) Safety Devices

(a) All electric hoists shall be equipped with mechanical or electrical protective devices which will bring the hoists to rest within reasonable distance upon failure of power.

(b) Hoisting cable shall be firmly clamped to the drum or reel and at least three turns of the cable shall always remain on the drum or reel.

(5) Signals

(a) At every hoisting operation, an efficient signal system shall be provided, so that hoisting signals may be communicated from the foot of any slope or incline to the hoisting engineer. Calling or hand signals shall be accepted

in lieu of such signal system if the engineer has full view of the car or skip throughout the length of slope of incline. Unless the engineer has such full view, no hoisting engine shall be operated when such signal system is out of order.

(b) Every signal system operated in connection with a hoisting engine shall be so designed and located as to provide either audible or visible signals to the hoisting engineer.

(6) Signal Code

(a) A standard code of signals shall be adopted by the operator and such code shall be plainly posted in full view of the hoisting engineer. Such signal code shall also be posted in full view of the person employed as a signal man or lookout.

(7) Riding

(a) Employees shall not be permitted to ride on conveyor or elevator belts.

(8) Record

(a) The owner, operator or superintendent of each quarry or pit shall provide and maintain a hoisting equipment inspection book and all hoisting equipment consisting of cars, skips, or other conveyances, cables, pulleys, sheaves, anchor shafts, safety switches, derails or any other such equipment shall be thoroughly inspected at least once each week and the results therefrom noted in this book at least once each month.

(b) The hoisting equipment book shall always be kept available for inspection by a duly authorized representative of the Department.

(9) Housing

(a) The hoisting equipment shall be housed in a suitable shed or building which will protect the operator and the equipment against the weather.

(10) Alarm

(a) A special alarm signal, which will produce a sound that can be plainly heard in all parts of the pit or quarry, shall be installed near the hoist engineer and shall be sounded when a car breaks loose on the incline, and shall not be sounded at any other time except for testing.

(11) Sheaves and Drums

(a) Sheaves and drums shall be at least as large as the minimum size recommended by the rope manufacturer.

Author: Department of Relations
Statutory Authority: Code of Ala. 1975, § 25-2-2(3)
History: Prior to October 1, 1982, this regulation was designated as General Rule 8.

480-3-4-.09 Hoisting Apparatus And Derricks For Dimension Stock Quarries.

(1) Slings

(a) Wire rope slings, grab hooks or chains shall be used to attach the blocks of stone to the hoisting apparatus

(2) Maintenance

(a) All ropes chains, cables, slings, sheaves, gears and other parts of derricks and hoisting apparatus in use shall be examined daily. Any parts found to be defective shall be repaired or renewed promptly.

(b) Hand operated derricks shall be equipped with brakes which can be operated from either side of the drum.

(3) Guy Wires

(a) The wire rope guys supporting the masts of a derrick and their wire fastenings shall be inspected semi-monthly while in use and shall be kept in good condition.

Author: Department of Industrial Relations
Statutory Authority: Code of Ala. 1975, § 25-2-2(3).
History: Prior to October 1, 1982, this regulation was designated as General Rule 9.

480-3-4-.10 Power Equipment.

(1) Inspection

(a) Power equipment shall be inspected by the operator at the beginning of each shift and such examination shall include an inspection of the mechanical and/or electrical equipment.

(2) Maintenance

(a) Where power equipment is used at night, all lights shall be inspected before darkness, defective globes replaced, and defective wiring repaired.

(3) Oiling

(a) Power equipment shall not be cleaned or oiled while in motion, except where adequate protection is provided against moving parts.

(b) All steps, hand rails, grab irons and floors shall be kept free from grease, wire and debris.

(4) Boulders

(a) Oversize rock material set aside by the shovel runner for blasting shall be examined to determine whether or not any unexploded powder remains in such rock or boulder. It shall be the responsibility of the foreman, or such person he may designate, to determine whether or not rocks or boulders set aside for blasting are safe to drill.

(b) No unauthorized person shall be allowed on any power equipment while it is in operation.

(c) Men shall not pass between the shovel and quarry walls while the shovel is operating near such walls if the shovel is in motion.

Author: Department of Industrial Relations
Statutory Authority: Code of Ala. 1975, §25-2-2(3).
History: Prior to October 1, 1982, this regulation was designated as General Rule 10.

480-3-4-.11 Electrical Equipment Installation.

(1) Grounding

(a) The frames and bed plates of generators, transformers, compensators, rheostats, motors, and switches shall be effectively grounded. All metallic coverings and conduit shall also be grounded. All grounds for one unit shall be tied into one central ground. The owner, operator or superintendent shall be responsible for insuring that all electric circuits and equipment are properly grounded.

(b) The protective grounding of electrical circuits and equipment to water pipe systems, when available, is desired as such grounding offers the most effective protection to life and property. Gas or air pipe lines shall not be used for grounding circuits. Metal well casings, metal drain pipes and similar buried metal structures of considerable extent may be used in lieu of extended buried water piping systems.

(c) The ground connection to metallic piping systems shall be made by means of an approved clamp firmly bolted to the pipe

after all rust and scale have been removed, or by means of a brass plug which has been tightly screwed into a pipe fitting or, where the pipe is of sufficient thickness, screwed into a hole in the pipe itself, or by other equivalent means. The grounding conductor shall be attached to the clamp or to the plug by means of solder or a suitable solderless connector.

(d) If conduit, couplings, or fittings having protective coating of non-conducting material, such as enamel, are used, such coating shall be thoroughly removed from couplings, conduits and such surfaces of fittings where the conduit or ground clamp is secured, in order to obtain a good connection.

(e) Artificial grounds should be located where practicable below permanent moisture level or, failing in this, at least six (6)feet deep. Areas where ground water level is close to the surface should be used when available.

(f) Where copper ground plates are used, they should be at least six hundredths (0.06)of an inch thick. When driven pipes are used, they should be of galvanized iron and not smaller than three-fourths (3/4)inch internal diameter, and when cast iron plates are used they should be at least twenty-five hundredths (0.25)inch thick.

(9) All fixed electric light and power lines, regardless of voltage, shall be properly supported on standard insulators.

(2) Insulation

(a) Portable extension light lines shall be flexible with heavy insulation, equipped with heavy wire light globe shield, hook, and heavy insulated handle. The socket shall be keyless and lamp circuit shall be protected by a fuse.

(3) High Voltage

(a) Where employees are required to handle high voltage insulated trailing cables, they shall be provided with and required to use approved cable tongs. Where surroundings are wet, such persons shall also be provided with and required to wear rubber gloves and rubber boots, while engaged in moving trailing cables.

(4) Trailing Cables

(a) Damage to the insulation of trailing cables shall be promptly reported and repairs made. Splicing shall be done only by a competent electrician or person competent to splice cables and splices shall be made moisture-proof. Where it is necessary for mechanical equipment to cross a cable, cable bridges shall be provided and used. Where armoured cables or conduit are used, the armour or metal conduit shall be

electrically continuous, and when necessary to splice armoured cable, the broken section of the armour shall be bonded to insure electrical continuity.

(b) All transformers, unless of "dead front" construction or unless installed at least 8 feet above ground shall be enclosed in a house or surrounded by a fence at least 6 feet high. If the enclosure is metal, it shall be grounded effectively. The gate or door to enclosure shall be kept locked at all times unless authorized persons are present.

(c) "Danger-High Voltage" signs shall be posted conspicuously on all transformers, enclosures, and other high-potential installations.

(d) Insulating platforms of wood, rubber or other nonconductive material shall be kept in place at each switchboard, and at stationary machinery where shock hazards exist.

(e) Power circuits shall be protected against short circuits or excessive overload. Wires or other conducting materials shall not be used as a substitute for proper designed fuses.

(5) Illumination

(a) Stationary lights shall be provided at stations where machines are erected and in the proximity of which persons employed in the quarry or pit are working or moving about, shall be so lighted that the moving parts of such machinery can be readily distinguished.

Author: Department of Industrial Relations
Statutory Authority: Code of Ala. 1975, § 25-2-2(3)
History: Prior to October 1, 1982, this regulation was designated as General Rule 11.

480-3-4-.12 Guarding Mechanical Equipment.

All gears chains, sprockets, friction devices and couplings with protruding bolts or nuts; shaftings and projecting shaft ends that are within seven feet of floor or platform level; belt or rope drives that are within seven feet of floor or platform; circular and band saws and planers shall be adequately guarded.
Author: Department of Industrial Relations
Statutory Authority: Code of Ala. 1975, § 25-2-2(3)
History: Prior to October 1, 1982, this regulation was designated as General Rule 12.

480-3-4-.13 Tools.

(1) The operator shall be responsible for the safe condition of tools furnished employees by the operator and shall not permit the use of tools which are unsafe or permit the mis-use of any tools.

(2) The employee shall be responsible for the safe condition of tools he furnishes and shall not use any such tools which are not in safe condition.

(3) The employee shall promptly report to the superintendent or foreman any tool being used by him which is in an unsafe condition and said tool shall be promptly replaced or made safe by person furnishing it.
Author: Department of Industrial Relations
Statutory Authority: Code of Ala. 1975, § 25-2-2(3)
History: Prior to October 1, 1982, this regulation was designated as General Rule 13.

480-3-4-.14 Scaffolds And Platforms.

(1) Stages, platforms or scaffolds required for work in and around pits or quarries shall be substantially built of sound material. Where wood is used, nothing less than 2-inch material shall be used for flooring.

(2) Railings and Toe Boards

(a) Permanent elevated platforms and scaffolds shall be provided with standard hand railings and toe boards.

(3) Working floors of stages, platforms and scaffolds shall be well kept, and attention shall be paid to reducing the stumbling hazards to a minimum by good housekeeping. Tools, drills, drill steel or other material shall not be left on platforms or scaffolds at the end of the shift.
Author: Department of Industrial Relations
Statutory Authority: Code of Ala. 1975, § 25-2-2(3)
History: Prior to October 1, 1982, this regulation was designated as General Rule 14.

480-3-4-.15 Explosive Magazines.

(1) All magazines in which explosives are kept or stored shall be located at a distance from buildings, railroads and highways in conformity with the Quantity and Distance Table in these rules.

(2) All magazines containing more than two hundred (200)pounds of explosives shall either be barricaded on the distances from inhabited buildings, public railways and public highways shall be doubled.

(3) The term "barricade" shall mean a physical barrier, either natural or artificial, around the magazine, to protect life and limb in buildings and on highways, railroads and railways from damage by premature explosion.

(a) Methods of barricading are as follows:

1. Locate the magazine in an isolated ravine or;

2. Excavate at foot or side of hill sufficiently deep to provide protection on the sides and end of the magazine. A two (2)foot space shall be allowed between the magazine and the excavated sides; or

3. Construct a substantial barricade of concrete or timber or earth or stone bank.

(4) All explosive magazines shall be well ventilated, constructed of substantial materials, and approved by the Department.

(5) The magazine shall be located in an isolated place. A damp location shall be avoided. All drain ditches around the magazine must be kept open at all times.

(6) The size of the magazine depends upon the amount of explosives to be stored. The dimensions given in the following table are suitable for the amounts indicated.
DIMENSIONS

Quanity	Width	Length
1,000 lbs	6 feet	6 feet
2,000 lbs	6 feet	7 feet
5,000 lbs	8 feet	9 feet
10,000 lbs	10 feet	12 feet
16,000 lbs	12 feet	14 feet
20,000 lbs	12 feet	16 feet
25,000 lbs	12 feet	18 feet
30,000 lbs	12 feet	20 feet
40,000 lbs	14 feet	22 feet
50,000 lbs	14 feet	24 feet

(7) Danger Sign

(a) Magazines must be designated by conspicuously posted signs with the words "Magazine," "Explosives," "Dangerous," legibly

printed thereon. Such signs shall be so placed that a bullet passing through the sign will not enter the magazine.

(8) Lighting

(a) Where magazines are artificially lighted, the light wiring shall be in conduit from a point not less than twenty (20) feet outside the magazine. The light switch shall be outside the magazine and the lamps shall be enclosed in a vapor proof globe protected by a rigid wire guard.

(9) High explosives shall not be stored in the same magazine with black powder or any other explosive.

(10) Separate Detonator Storage

(a) Blasting caps and electric blasting caps shall not be stored in the same magazine with dynamite or powder, but shall be stored in a magazine of similar construction as the dynamite or powder magazines, and not nearer than fifty feet (50') to any other explosive magazine.

(11) All magazines constructed after the effective date of the rules shall be constructed in accordance with the requirements of this Rule 15. The existing magazines which do not conform to such requirements may be continued in use unless found by the Department to be unsafe.
Author: Department of Industrial Relations
Statutory Authority: Code of Ala. 1975, § 25-2-2(3)
History: Prior to October 1, 1982, this regulation was designated as General Rule 15.

480-3-4-.16 Transportation Of Explosives.

(1) Construction

(a) Explosives transported in motor trucks or other conveyances shall be transported in their original containers and the motor trucks, vehicles and other conveyances shall be so constructed that the explosives will be protected against shock and friction.

(2) Markings

(a) Such motor trucks, vehicles or conveyances shall be plainly marked or placarded on both sides and the rear with the words "Explosives - Dangerous" in letters not less than three (3) inches high.

(3) Handling

(a) Motor trucks, vehicles or other conveyances transporting explosives shall be handled in a safe and careful manner and no person while smoking or under the influence of intoxicating liquor shall ride upon, drive, load or unload a vehicle carrying explosives.

(b) No persons other than those authorized to transport, load or unload motor trucks, vehicles or other conveyances carrying explosives shall ride with any load of explosives.

(c) No tools, other than for truck repairs, detonators, matches or other flame producing materials shall be carried in any motor truck, vehicle or other conveyance transporting explosives.

(4) Construction

(a) Exposed metal on the inside of the body of any motor truck, vehicle or other conveyance used for transportation of explosives shall be covered or protected in such a manner as to prevent contact of explosive containers with any exposed metal.

(b) Explosives shall not be transported in any form of trailer nor shall any trailer be attached to a motor truck, vehicle or other conveyance hauling explosives.

(5) Detonators

(a) All detonators shall be transported into the pit or quarry in the original containers or in suitable containers provided for the express purpose of transporting detonators of electric detonators.

(6) Smoking and Lights

(a) Persons engaged in transporting explosives, charging drill holes or handling explosives for any purpose shall not be permitted to smoke, or to use or carry any open lights.

(7) Where explosives are transported by hand, the explosives shall be carried in the original or a suitable container and capped fuse or electric detonators shall be carried in a separate container.
Author: Department of Industrial Relations
Statutory Authority: Code of Ala. 1975, § 25-2-2(3)
History: Prior to October 1, 1982, this regulation was designated as General Rule 16.

480-3-4-.17 Handling And Use Of Explosives.

(1) Only designated persons shall cut, cap, and issue capped fuses and explosives.

(2) Fuse

(a) When cutting fuse it shall be cut square across with a sharp clean instrument and the cap crimper used shall be of a type recommended by explosives manufacturers. A bench type crimper is recommended.

(b) No explosives container shall be opened with any metallic instrument.

(c) No person shall remove any explosives from a pit or quarry magazine without permission of the pit or quarry superintendent or foreman.

(3) Storage

(a) Capped fuse or electric detonators shall not be stored within 50 feet of other explosives.

(b) Black powder shall not be used in the same drill hole with other explosives except when a small quantity of dynamite is used as a detonator.

(c) Oils or other combustible substances shall not be stored within 50 feet of any explosives.

(4) Power Lines

(a) Explosives shall not be placed or left within 25 feet of any power lines, cable or other electrical conductor other than that used for lighting the place of storage.

(b) Detonators shall not be removed from containers except as they are used for capping fuses or in the case of electric detonators as they are used in preparing primers except when placed in other containers as recommended by manufacturers.

(c) Fuse shall not be cut and capped nearer than 50 feet to any explosives magazine.

(d) Paper, sawdust, wooden boxes or cartons shall be placed at a safe distance from any magazine and each day's accumulation shall be removed at the end of the shift.

(5) Length of Fuse

(a) Fuse shall be cut long enough to extend beyond the collar of a loaded drill hole, and in no case shall it be less than 4 feet in length.

(6) Fuse Burning and Cutting

(a) No fuse shall be used that burns faster than 1 foot in 30 seconds or slower than 1 foot in 55 seconds according to manufacturer's rating.

(b) In capping fuse at least 1 inch shall be cut from the end of each coil or roll of fuse used.

Author: Department of Industrial Relations
Statutory Authority: Code of Ala. 1975, § 25-2-2(3)
History: Prior to October 1, 1982, this regulation was designated as General Rule 17.

480-3-4-.18 Blasting (General).

(1) All blasting including blasting of boulders shall be done at the end of the shift, except that blasting may be done during the shift if blasting houses are provided and used for the protection of shot firers and other persons in the quarry; these houses shall be built of timbers not less than 7" x 9", or equivalent, erected a safe distance from any point where blasting is done.

(2) All blasting should be done electrically or with detonating fuse.

(3) Primers

(a) Primers shall be made up near the working place by competent men experienced in handling explosives. Such persons shall also load, assist in loading or supervise the loading or charging of drill holes.

(b) Primers should be prepared by inserting the detonator in the side of the cartridge and making one or more half hitches around the cartridge with the fuse, or by inserting the detonator in the side or end of the cartridge and tying the fuse to the cartridge. Holes made in the primer cartridge for the purpose of inserting the detonator shall be made with a wooden or soft metal skewer.

(4) Tamping

(a) In tamping holes only a wooden tamping bar, or block having no exposed metal parts shall be used. Before charging drill holes, except well holes, they shall be thoroughly cleaned. Explosives shall not be violently tamped in the drill hole, but may be firmly charged, except that undue pressure

shall not be used against the primer cartridge when placing it in the drill hole. The primer cartridge shall not be slit.

(5) Explosives

(a) Explosives shall not be brought to the working place more than one hour before charging operations begin and shall be kept in a place safe from danger of ignition or detonation by electrical wiring, mechanical equipment or loose rock.

(6) Stemming

(a) When a drill hole has been charged with explosives, it shall be filled to the collar with stemmings material, as nearly free from rock or grit as practical. Rock dust, free running sand or moist sand, clay or loam is recommended. The stemming material shall be well tamped. For well drilled holes stone screenings of 1/4 inch and down are recommended.

(6) Charging

(a) No charging operations shall be carried on in working places where rock falling from the face or rolling rock is likely to endanger the charging operations. Working places shall be made safe for charging operations before charging is begun. Charging of explosives shall only be done at a safe distance from drilling and loading operations.

(b) Fuse igniters of the "hot wire" type or punk or their equivalent shall be used for igniting safety fuse.

(c) Mis-fires shall be reported to the quarry or pit foreman, and no person shall return to the vicinity of the suspected mis-fire until thirty (30)minutes has elapsed in the case of fuse blasting and until fifteen (15)minutes has elapsed in the case of electrical blasting. No regular quarry or pit operations shall be conducted in the area of a known mis-fired hole. Mis-fires, (except in the case of well holes), shall be reblasted by inserting a new primer in drill hole. In such case stemming or tamping material may be washed from the drill hole with water before inserting the new primer.

(7) Mis-fires

(a) If not possible or safe to insert a new primer, a new hole may be drilled under the personal supervision of the pit or quarry foreman, and such hole shall be started not less than 2 feet from the original drill hole and shall be drilled at such an angle as to eliminate all danger of meeting or coming closer than 2 feet of the original drill hole. In the case of sprung holes the new drill hole shall be placed and carried at such an angle that there will be no possibility of its meeting any part of the mis-fire charge, provided that, in case of a

mis-fired well drilled hole it shall not be disturbed nor any attempt made to fire it without permission of the superintendent or quarry foreman.

(b) If explosives are found in "bootlegs" or "guns," they shall be treated as misfired shots. All pit or quarry operations in any working place shall be alerted if explosive is found in the muck pile, and such work shall be continued with caution until there is reasonable certainty that all of the unexploded powder in the muck pile has been recovered. Such recovered explosive shall be removed and destroyed, following procedure recommended by the explosive manufacturers. Any left over explosive, capped fuse, or detonators, remaining after charging the drill holes, shall be returned to the distributing magazine.

(c) Boulders which must be broken by blasting, shall be block-holed and "adobe," "plaster" or "mud-capped" shots shall be prohibited, except that such shots may be permitted where no means of drilling such boulders is available, provided that they shall then be fired under supervision of the pit or quarry foreman or his assistant.

(d) All electric power within an unsafe distance of the place to be blasted shall be cut off during loading of holes.

(8) Springing

(a) Where drill holes are sprung, the temperature of the chamber shall be determined before placing the final charge and no hole shall be loaded with the final charge until the chamber has been cooled to 800^ F. No drill holes shall be sprung when adjacent to a loaded sprung hole.

(b) Cartridges shall not be forced into drill holes. Cartridges shall be placed in drill holes in the original wrapper.

(9) Detonator Strength

(a) Where detonators are used, nothing less than number 6 detonators or electric detonators shall be used to explode charges.

Author: Department of Industrial Relations
Statutory Authority: Code of Ala. 1975, § 25-2-2(3)
History: Prior to October 1, 1982, this regulation was designated as General Rule 18.

480-3-4-.19 Electrical Blasting.

(1) Connecting

(a) Electric blasting with blasting machines, or special circuits is permissable. With blasting machines, connections shall be made in series or in a combination connection recommended by the manufacturer. With power currents connections shall be made in series, parallel, or a combination of the two.

(b) Where blasting is by means of a special blasting circuit, no one shall enter the place in which the blasting has been done until the permanent blasting wires have been disconnected from the source of electrical energy and the blasting switch has been locked into the open position.

(2) Blasting Machines

(a) All blasting machines for generating or supplying electricity for shot firing shall, when in the pit or quarry, be in charge of a person properly instructed in blasting practice and no other person shall connect the blasting machine to the leading wires, and such connections shall not be made until all other steps preparatory to the firing shall have been completed and the men removed to a safe place.

(b) Electric current from light or power circuits shall not be used for firing shots in a pit or quarry except when the electric connections to light or power circuits are made within the enclosed switch box described in these rules.

(c) Permanent blasting lines shall be kept well in the clear from all power and light circuits and from all pipes, rails, etc., and shall be run or strung at least 20 feet away from all power, lighting, and other electrical circuits.

(3) Blasting Circuits

(a) Grounded circuits or systems shall not be used for electrical blasting.

(b) Permanent blasting lines, safety switches and blasting switches shall be maintained by a competent electrician or other competent and experienced person.

(4) Lead Wires

(a) Leading wires from portable generating blasting devices or approved type batteries shall be not less than #14 A.W.G. insulated wire except that for single shots they shall be not less than #18 A.W.G. insulated wires.

(5) Blasting Circuits

(a) Permanent blasting wires shall be so installed and maintained that they provide the current capacity required by

the electrical firing device. All such wires shall be in conduit, shall consist of type "S" cable or equivalent, or shall consist of two rubber covered wires strung on glass insulators or porcelain knobs. If rubber covered wires are used, they shall be kept at least five inches apart.

(6) Connecting Wires

(a) Connecting wires shall be not less than #20 A.W.G. insulated wires. Temporary wires shall be not less than #14 A.W.G. insulated wires. Bus wires shall not be smaller than #16 A.W.G. bare copper wires.

(7) Blasting Switches

(a) At the location where the shot firing is to be controlled, there shall be installed a suitable blasting circuit enclosed, externally operated pole switch with the handle or lever arranged to be locked in the "off" position only.

(8) Single Circuits

(a) Single Blasting Circuit: "Where the blasting lines run to a single face to be blasted, a "safety" switch of the same type as required for blasting switch shall be installed between the switch and the face. This switch shall be installed in a safe location guarded from flying rock.

(9) Multiple Circuits

(a) Multiple Blasting Circuits. Where a single blasting switch is used for several blasting circuits, a safety switch shall be installed in each circuit immediately adjacent to the blasting switch.

(b) In addition, a second safety switch shall be installed in the circuit adjacent to the area to be blasted.

(10) Testing

(a) A blasting galvanometer or circuit tested especially designed for blasting work shall be used for testing.

(11) Shorting

(a) Leg Wires of electric detonator shall be kept short circuited by means of short-circuiting device or by twisting ends of leg wires together, except that the short-circuiting devices may be removed temporarily for the purpose of testing detonators with the galvanometer.

(b) Before connecting the temporary wires to the leg wires, or bus wires, the ends of the temporary wires that are to be

connected to the safety switch shall be "shorted" by being twisted together.

(c) The man making or supervising the connection at the face must have the "shorted" ends of the temporary wires in his possession and after making the connections at the face, he shall run the temporary wires to the safety switch. He shall never attach the temporary wires to the safety switch before attaching them to the leg wires, or bus wires.

(d) At the safety switch, he shall untwist the temporary wires, unlock the safety switch, attach the temporary wires to the safety switch and then place the "safety" switch in the "on" position. He shall then proceed or signal to a designated person at the blasting switch and he or such designated person shall unlock the blasting switch, throw it in the "on" position to fire the shot, then immediately return the blasting switch to the "off" position and lock it in that position.

(e) After blasting, no one shall go nearer the place that has been blasted than the safety switch until that safety switch has been opened, the temporary wires disconnected and the safety switch locked in the "off" position.

(f) No blasting or preparation for blasting shall be done during electrical storms.

(12) Workmen

(a) The minimum necessary number of men shall be at the loading places when making the blasting connections. All other men shall be a safe distance away from the loading place when blasting connections are made.

Author: Department of Industrial Relations
Statutory Authority: Code of Ala. 1975, § 25-2-2(3).
History: Prior to October 1, 1982, this regulation was designated as General Rule 19.

480-3-4-.20 Explosives.

(1) Location

(a) Explosives must be unloaded at a safe distance from the blasting place.

(2) Storing

(a) If several boxes of explosives are deposited near the blasting circuit, the boxes shall be stacked in an orderly manner and protected from the sun by means of canvas or

similar material so placed as to allow free circulation of air under the canvas and around the stacked boxes.

(3) Alarm

(a) Every pit or quarry shall be provided with a whistle or alarm which shall be sounded not less than three minutes before the time set for blasting and such whistle or alarm shall be sounded at frequent intervals until the last shot of the blast occurs.

(b) Where blasting is carried on in dangerous proximity to public thoroughfares, such thoroughfares shall be blocked off previous to blasting or guards shall be stationed at each end of the endangered portion of such thoroughfare and all traffic shall be halted, with no person or vehicle allowed within the danger zone. Guards shall be provided with a metal sign having the words, "Stop-Blasting" plainly printed thereon and shall also use a red flag for warning purposes.

(c) Where blasting is carried on in dangerous proximity to inhabited buildings, the occupants shall be notified of the impending blast, in time to take refuge in a safe place. This may be accomplished by courier or by a whistle or alarm; if alarm system is used, the occupants shall be informed as to signal used for blasting.

(4) Handling

(a) Packages containing explosives shall not be handled roughly, shall not be slid across floors, rocks or other packages of explosives and shall not be thrown or dropped. Frozen explosives shall not be thawed or used but must be destroyed.

(b) The use of ammonium nitrate mixed with other materials as an explosive is hereby recognized. Due to the experimental state at the time of this revision, no attempt is offered for rules covering its application. When suitable experience has been obtained, rules should be established and appended hereto.

Author: Department of Industrial Relations
Statutory Authority: Code of Ala. 1975, § 25-2-2(3).
History: Prior to October 1, 1982, this regulation was designated as General Rule 20.

480-3-4-.21 Drilling.

(1) Wet Drilling

(a) All drilling should be done wet including the collaring of drill holes.

(2) Hoses

(a) Air lines and hoses shall not be disconnected from drills while under pressure.

(b) When drilling boulders, they shall be carefully examined to determine whether or not they contain "bootlegs" or "guns" and drilling shall not be started in such holes nor shall any boulder be drilled if it contains a "bootleg" or "gun" until examination, and, if necessary, washing out with water or cleaning out with wooden stick has shown that the hole contains no explosives.

(3) Oil and Grease

(a) Oil, grease and inflammable material used in the operation of well or churn drills shall not be stored or left near electrical wires or connections, and the working space around the collar of the hole shall be kept as free of excess material and tools as conditions permit.

(b) Fuel oils or other flammable oils or grease shall not be burned in open containers or thaw airlines or for personal warmth.

(4) Storage of Flammable Materials and Oils

(a) Oils or other flammable materials stored in open pits shall be maintained in a manner to create minimum hazard. Permanent tanks shall be diked or located whereby spillage or leakage shall drain away from workmen and equipment in case of fire. All permanent tanks containing flammable material shall be vented, grounded and equipped with flash screens. Under no circumstances shall oxygen or flammable gas be stored in proximity to petroleum products.

(5) Tongs

(a) Where electrically operated churn or well drills are used, each rig shall be provided with two pairs of suitable cable tongs which shall be maintained in good condition and used whenever it is necessary to handle power cables.

Author: Department of Industrial Relations
Statutory Authority: Code of Ala. 1975, § 25-2-2(3).
History: Prior to October 1, 1982, this regulation was designated as General Rule 21.

480-3-4-.22 Safety Appliances For Pressure Tanks.

(1) Safety Valves

(a) All compressed air receivers, cylinders or other vessels used in or around open pits or quarries shall be protected by safety or relief valves to insure safe operation.

(b) Safety or relief valves shall be tested once each operating day.

(2) Drain Valve

(a) All compressed air receivers, tanks, etc., shall be equipped with a drain valve.

(b) Drain valves shall be operated at least once each operating day.

Author: Department of Industrial Relations
Statutory Authority: Code of Ala. 1975, §25-2-2(3).
History: Prior to October 1, 1982, this regulation was designated as General Rule 22.

480-3-4-.23 Drainage.

(1) Where the safety and health of men are endangered, adequate facilities for the drainage of all active workings in open pits and quarries shall be provided. Pumps used for drainage shall be located in places where access may be had to them without coming into dangerous or forbidden areas.

(2) All hillside quarries should be developed, if at all possible, in such a manner as to assure natural drainage from all workings.

Author: Department of Industrial Relations
Statutory Authority: Code of Ala. 1975, § 25-2-2(3).
History: Prior to October 1, 1982, this regulation was designated as General Rule 23.

480-3-4-.24 Protective Apparel.

(1) Goggles; Hats and Shoes

(a) All persons working near, or engaged in chipping, breaking, drilling, picking, cutting or polishing hard materials should wear protective safety goggles, preferably the safety glass type with ventilated side shields, while

engaged in this kind of work or while otherwise exposed to flying particles. All employees entering or working in a quarry and exposed to danger from falling articles should wear hard toed or safety shoes, and hard or safety hats.

Author: Department of Industrial Relations
Statutory Authority: Code of Ala. 1975, § 25-2-2(3).
History: Prior to October 1, 1982, this regulation was designated as General Rule 24.

480-3-4-.25 First Aid Facilities.

Arrangements shall be made and faithfully maintained such that every injury suffered will receive adequate treatment promptly.

Author: Department of Industrial Relations
Statutory Authority: Code of Ala. 1975, §25-2-2(3)
History: Prior to October 1, 1982, this regulation was designated as General Rule 25.

480-3-4-.26 Sanitation And Health.

Toilets - Standard approved sanitary toilets or latrines should be provided and kept in a clean and sanitary condition. Unless employees in the quarry or pit are permitted to come to the surface to use toilets, temporary latrines should be maintained therein. Such temporary latrines should be enclosed.

(a) Potable drinking water shall be supplied at all times in places accessible to employees.

(b) The common drinking cup or dipper for public use shall be prohibited. Individual drinking cups or bubbling fountains shall be used in lieu thereof. The sanitary portable fount, jet type, is recommended.

Author: Department of Industrial Relations
Statutory Authority: Code of Ala. 1975, § 25-2-13(2)
History: Prior to October 1, 1982, this Rule was designated as General Rule 26.

480-3-4-.27 Physical Examinations.

(1) Physical Condition

(a) All prospective employees at any pit or quarry, shall receive a careful and thorough examination by a licensed physician selected by the operator before employment. Such examination shall determine the prospective employee's hearing, vision, the condition of his heart and lungs and any

detectable physical or mental abnormalities, or defects which might affect his health or safety or the health or safety of fellow employees.

(b) A prospective employee not physically fit shall be employed only at work which may be performed by such employee, without endangering the health or safety of himself or other employees.

(c) No person proved to be mentally unbalanced shall be employed in or around any pit or quarry.

(d) Physical examinations before employment shall be provided by the operator without cost to the prospective employee.

Author: Department of Industrial Relations
Statutory Authority: Code of Ala. 1975, §25-2-2(3).
History: Prior to October 1, 1982, this regulation was designated as General Rule 27.

480-3-4-.28 Safety Rules.

These pit and quarry rules represent the minimum requirement or safety pit and quarry operation. To further safeguard the health, life and limb of persons employed in and around pits and quarries, pit and quarry operators shall formulate, distribute and enforce detailed safety rules or regulations, not in conflict herewith, which thoroughly cover all pit and quarry operations and conditions characteristic of their pit and quarry or pits and quarries.

Author: Department of Industrial Relations
Statutory Authority: Code of Ala. 1975, §25-2-2(3)
History: Prior to October 1, 1982, this regulation was designated as General Rule 28.

480-3-4-.29 Responsibility Of Operations And Employees.

(1) It shall be the responsibility of the operator to perform the following:

(a) Provide safe plant and equipment.

(b) Safeguard all machinery.

(c) Place no new machinery or equipment in operation unless full attention has been paid to its safety.

(d) Plan and arrange all processes and operations with careful attention to safety.

(e) Maintain a system of inspection to discover correctable hazards.

(f) Maintain safety minded supervision.

(g) Train, educate and stimulate his employees to follow safe methods of work and take a sincere interest in the safety of themselves and their fellow workers.

(h) Investigate all accidents to determine how best to prevent a recurrence.

(i) Keep proper record of all cases of injuries.

(2) It shall be the responsibility of the employee to:

(a) Use all safeguards provided.

(b) Comply with the pit and quarry safety rules and follow the safety rules and regulations prescribed by the Department.

(c) To follow safe methods for performing work.

(d) To continually guard against injury to himself and his fellow employees.

(e) Immediately report a11 hazardous conditions which come to his attention to his supervisor.

(f) To report all injuries, regardless of severity, to his immediate supervisor.

Author: Department of Industrial Relations
Statutory Authority: Code of Ala. 1975, § 25-2-2(3)
History: Prior to October 1, 1982, this regulation was designated as General Rule 29.

480-3-4-.30 Inspections And Reports.

Some competent and experienced person or persons shall make an inspection at least once each month of all active parts of any pit or quarry and appliances in the pit or quarry which are in use, and shall report any unsafe conditions to the employer who shall take prompt steps to remedy the same.
Author: Department of Industrial Relations
Statutory Authority: Code of Ala. 1975, § 25-2-2(3).
History: Prior to October 1, 1982, this regulation was designated as General Rule 30.

480-3-4-.31 Reports To The Department.

(1) Reports

(a) In case of explosives accident or premature blast or any other occurrence or change of conditions tending materially to increase the hazards of pit or quarry operations, whether or not personal injury results, a report thereof shall be promptly sent to the Department by the operator.

(b) When an accident results in serious injury or death, immediate report shall be made by the employer to the Department by telephone or telegraph.

(c) On or before the twenty-fifth of October each year, the operator or superintendent of every quarry or open pit shall send to the department a correct report specifying with respect to the year ending with the thirtieth of September preceding, the name of the operator, the location of offices of quarries or open pits, the quantity of material and kind of material mined. The report shall be in such form and give such information regarding such operations as may be from time to time, required and prescribed by the department. Blank forms for such report shall be furnished by the department.

Author: Department of Industrial Relations
Statutory Authority: Code of Ala. 1975, § 25-2-2(3).
History: Prior to October 1, 1982, this regulation was designated as General Rule 31.

480-3-4-.32 Inspections, Investigations And Reports By The Department.

(1) Frequency of Inspections - The Department shall conduct safety inspections as follows:

(a) At least once every three (3) months at quarries where blasting occurs.

(b) At least once every six (6) months at sites where non-fuel minerals (i.e., sand, gravel, clay, bauxite, etc.) are being surface-mined.

(c) Adjoining inactive, idle, or abandoned operations shall also be inspected if they are believed to adversely affect the safety of employees in active mining operations.

(2) Annual Report

(a) The Department shall keep a record of all inspections showing the date when made, the conditions in which the pit or quarry is found, the extent to which the operator is complying with these rules, the improvement and security of life and health sought to be secured by these rules, the number of accidents, injuries received or deaths in or about the pit or quarry, the number of persons employed in the pit or quarry together with all other facts and information of public interest concerning the condition of the pit or quarry.

(3) Disposition of Inspection Reports

(a) A comprehensive report of each inspection shall be promptly made to the operator, superintendent, and foreman by the Department. The report made to the superintendent shall be in duplicate and he shall send one copy thereof to employees designated representative. This report to be on a form provided for that purpose and furnished by the Department.

(4) Investigation and Reports of Accidents

(a) Representatives of the Department shall promptly investigate all accidents resulting in serious injuries or death to any person or persons, whether employees in, or about the pit or quarry. The Department shall keep on file at its office a list of all accidents resulting in death or serious bodily injury to any person working in or about such pits or quarries.

(5) Authority to Stop Operation

(a) If at any time the Department shall be notified and shall find by investigation that the lives of the employees in such pits or quarries or any section of such pit or quarry are endangered by hazardous conditions, the Department, or its duly authorized representatives, shall have the authority to stop the operation of the entire pit or quarry or the section affected, until the conditions are corrected.

(6) Major Accidents

(a) In the case of major accidents, the Department, or its duly authorized representatives, shall have the authority to issue such orders as are necessary or proper to secure the safety of the persons working in the pit or quarry.

Author: Tom J. Ventress, Chief, State Programs Division
Statutory Authority: Code of Ala. 1975, §25-2-2(3).
History: Prior to October 1, 1982, this regulation was designated as General Rule 32. **Amended:** Filed December 31, 1997; effective February 4, 1998.