COMMUNICATION MEMORANDUM - NO. 01 -19

TO: All Licensed Operators

FROM: James P. Skorupa, Director

DATE: January 16, 2019

SUBJECT: Changes to the Safety and Health Regulations for Mineral Mining

Effective November 30, 2018, the attached document with changes to Safety and Health Regulations for Mineral Mining became effective. The Department of Mines, Minerals, and Energy’s Division of Mineral Mining conducted a periodic review of the Safety and Health Regulations for Mineral Mining. The group that performed the review was a joint committee composed of participants from the Division of Mineral Mining and representatives from various companies throughout Virginia’s mining industry. The committee proposed the changes in 2017. However, due to the process for review and approval, and signing by the Governor, they did not become effective until November 30, 2018.

If you have any questions regarding the changes or need assistance, please contact our office at (434) 951-6311 or your local area mine inspector.

Attachment: Safety and Health Regulation Changes (11 page document)
Safety and Health Regulation Changes

Effective November 30, 2018

(11 Pages)

Part I

General Administrative Provisions Surface and Underground


The following words and terms when used in this chapter shall have the following meanings unless the context clearly indicates otherwise:

"Abandoned mine" means a mine in which all work has stopped on the mine premises and where an office with a responsible person in charge is no longer maintained at the mine.

"Abandoned workings" means deserted mine areas in which further work is not intended.

"Acceptable" means tested and found to be appropriate for a specific purpose by a nationally recognized agency.

"ACGIH" means the American Conference of Governmental Industrial Hygienists.

"Angle of repose" means the maximum slope or angle at which material remains stable.

"Auxiliary fan" means a fan used to deliver air to a working place off the main airstream, generally used with ventilation tubing.

"Barricaded" means physically obstructed to hinder or prevent the passage of persons or vehicles.

"Blast area" means the area of the mine in which concussion or flying material can reasonably be expected to cause injury during detonation.

"Blast site" means the 50-foot perimeter around boreholes being loaded, or 30 feet if demarcated by a barricade, and the 180° free-face area for a distance of at least four times the average depth of the boreholes being loaded.

"Bridle" means a cable or chain used to support a work platform in a raised position with more than three connection points.

"Burden" means the distance in feet between rows of boreholes or between the open face and boreholes.

"Company official" means a member of the company supervisory or technical staff.
"Competent person" means a person having abilities and experience that fully qualify him to perform the duty to which he is assigned.

"Confined space" means an enclosed area that is large enough for an employee to enter fully and perform his assigned work but is not designed for continuous occupancy by the employee and has a limited or restricted means of entry or exit. These spaces may include storage bins, hoppers, silos, tanks, vaults, and other similar areas.

"Department" means the Department of Mines, Minerals and Energy.

"Director" means the Director of the Division of Mineral Mining.

"Distribution box" means an apparatus with an enclosure through which an electric circuit is carried to one or more cables from a single incoming feedline, each cable circuit being connected through individual overcurrent protective devices.

"Division" means the Division of Mineral Mining.

"Escapeway" means a passageway by which persons may leave if the ordinary exit is obstructed.

"Face" or "bank" means that part of any mine where excavating is progressing or was last done.

"Flash point" means the minimum temperature at which sufficient vapor is released to form a flammable vapor-air mixture.

"Free-face" means the face area of a quarry bench to be blasted.

"Flyrock" means any uncontrolled material generated by the effect of a blast that was hazardous to persons, or to property not owned or controlled by the operator.

"Heavy duty mobile equipment" means any equipment used for loading, hauling, or grading and not normally intended for highway use.

"Hoist" means a power-driven windlass or drum used for raising ore, rock, or other material from a mine, and for lowering or raising persons and material.

"Lay" means the distance parallel to the axis of the rope in which a strand makes one complete turn about the axis of the rope.

"Loaded" means containing explosives, blasting agents, or detonators.

"Main fan" means a fan that controls the entire airflow of the mine or the airflow of one of the major air circuits.

"Major electrical installation" means an assemblage of stationary electrical equipment for the generation, transmission, distribution, or conversion of electrical power.

"Mine opening" means any opening or entrance from the surface into a mine.

"Mine vehicle" means any vehicle on the mine site that is utilized by the mine operator or contractors performing excavation, maintenance, or construction at the mine.

"Misfire" means the partial or complete failure of a blast to detonate as planned.
"MSHA" means the Mine Safety and Health Administration.

"Occupational injury" means any injury to a miner which occurs at a mine for which medical treatment is administered, or which results in death or loss of consciousness, inability to perform all job duties on any day after an injury, temporary assignment to other duties, or transfer to another job as specified in the 30 CFR Part 50.2.

"Overburden" means material of any nature, consolidated or unconsolidated, that overlies a deposit of useful materials or ores that are to be mined.

"Potable" means fit for human consumption and, where required by the Code of Virginia, approved by the Virginia Department of Health.

"Powder chest" means a substantial, nonconductive portable container equipped with a lid and used at blasting sites for explosives other than blasting agents.

"Primer" means a cartridge or package of explosives which contains a detonator or detonating cord.

"Refuse" means mineral processing waste, tailings, silts, sediments, or slimes.

"Rollover protection" means a framework, safety canopy or similar protection for the operator when equipment overturns and which is acceptable for use on that particular type of equipment.

"Safety fuse" means a train of powder enclosed in cotton, jute yarn, and water-proofing compounds, which burns at a uniform rate, used for firing a cap containing the detonating compound which in turn sets off the explosive charge.

"Safety hazard" means any condition, function, or circumstance which may reasonably be expected to cause or assist an accident.

"Scaled distance (Ds)" means the actual distance (D) in feet divided by the square root of the maximum explosive weight (W) in pounds that is detonated per delay period for delay intervals of eight milliseconds or greater; or the total weight of explosive in pounds that is detonated within an interval less than eight milliseconds.

"Scaling" means removal of insecure material from a face or highwall.

"Shaft" means a vertical or inclined shaft, slope, incline, or winze.

"Stemming" means that inert material placed in a borehole after the explosive charge for the purpose of confining the explosion gases in the borehole or that inert material used to separate the explosive charges (decks) in decked holes.

"Substantial construction" means construction of such strength, material, and workmanship that the object will withstand all reasonable shock, wear, and usage to which it will be subjected.

"Suitable" means that which fits and has the qualities or qualifications to meet a given purpose, occasion, condition, function, or circumstance.

"Switch" means a device used to complete or disconnect an electrical circuit.
"Travelway" means a passage, walk or way regularly used and designated for persons to go from one place to another.

"Wet drilling" means the continuous application of water through the control hole of hollow drill steel to the bottom of the drill hole.

4VAC25-40-50. Duties of mine operators Reporting of accidents and injuries by the operator.

Reporting of accidents and injuries by the operator:

1. Report A. Operators shall report any accident involving serious personal injury or death to any person on the mine property. The report shall be made to the division by the quickest available means, and the scene of the accident shall not be disturbed until an investigation is conducted by the division. For accidents where the injured person is transported to a hospital, but confinement is not expected, the operator may either preserve the scene or collect relevant physical data and photographs as specified by the division. The division shall be notified immediately upon learning that the injured person has been admitted to the hospital for medical treatment. Head injuries that result in loss of consciousness at the site shall be reported immediately.

2. Keep B. Operators shall report all other accidents and occupational injuries to the division within 10 days of their occurrence. Operators shall keep on file a report of all accidents and occupational injuries occurring on the mine property for review by the division mine inspector. Such records shall be kept for five three years.

4VAC25-40-90. Documents incorporated by reference. (Repealed.)

A. 1996 Threshold Limit Values and Biological Exposure Indices published by the American Conference of Governmental Industrial Hygienists.


D. Virginia Department of Labor and Industry, Boiler and Pressure Vessel Safety Division, Boiler and Pressure Vessel Regulations, amended 2007 by the Virginia Department of Labor and Industry.


H. Addresses for references may be obtained from the division.

Part II

General Safety Provisions Surface and Underground

4VAC25-40-100. Employee training.

New or reassigned employees shall be trained in state and company safety regulations and be task trained prior to being assigned a task or duty. Records of training shall be kept in writing at the mine site for two years or the duration of the miner's employment and for 60 days after termination of employment.

4VAC25-40-290. Restricted access.

Access to unattended mine roads or mine openings shall be restricted by use of gates, doors, or fences and warning signs shall be posted.

4VAC25-40-300. Closure of roads or openings.

Upon abandonment of a mine, the operator shall effectively close or fence all roads or, mine openings or pits, and surface excavations where hazardous conditions exist and warning signs shall be posted. Upon temporary cessation of mining activities as provided for in § 45.1-181 of the Code of Virginia, the operator shall effectively close or barricade access roads and hazardous areas.


Stationary grinding machines other than special bit grinders shall be equipped with:

1. Peripheral hoods (less than 90° throat openings) capable of withstanding the force of a bursting wheel;

2. Adjustable tool rests set as close as practical to no further than 1/8 inch from the wheel; and


4VAC25-40-460. Examination for unsafe conditions.

All personnel shall examine their active workings for unsafe conditions prior to starting work and frequently thereafter. Any unsafe condition found shall be corrected or reported to the
designated certified mine foreman, or when a certified foreman is not required, a competent person.

**4VAC25-40-800.** Use of explosives.

A. A certified blaster shall be in direct charge of blasting activities.

B. Persons who assist in blasting activities shall be under the direct supervision of the certified blaster in charge and shall be alerted to the hazards involved.

C. Black powder or safety fuse shall not be used without approval from the director. Special approvals shall specify use restrictions and procedures necessary for safe storage, transportation, and use.

D. The design and loading of a blast shall provide sufficient burden, spacing, and stemming to prevent flyrock or other dangerous effects. Flyrock incidents shall be reported to the division immediately and details noted in the blast record.

E. Boreholes shall not be drilled where there is a danger of intersecting a loaded or misfired hole.

F. No person shall smoke or use an open flame within 50 feet of explosives or detonators.

G. Prior to bringing explosives and detonators to the blast site, the certified blaster in charge shall:
   1. Monitor weather conditions to ensure safe loading and firing;
   2. Inspect the blast site for hazards;
   3. Inspect and clear the boreholes of obstructions; and
   4. Remove personnel and equipment, except those used in loading the shot, from the blast site.

H. The certified blaster in charge shall review the drill logs to determine specific downhole conditions prior to loading the shot.

I. Boreholes to be blasted shall be loaded as near to the blasting time as practical. Loaded shots shall be blasted as soon as possible upon completion of loading and connection to the initiation device. Surface blasting shall be conducted during daylight hours only.

J. Explosives shall be kept a safe distance from detonators until they are made into a primer.

K. Primers shall not be made up or assembled in advance of the borehole being loaded.

L. Only wooden or other nonsparking implements shall be used to punch holes in an explosive cartridge.

M. Detonators shall be inserted completely and securely into explosive cartridges used as primers. Priming shall be sufficient to detonate the explosive column in the borehole.

N. Primers shall be inserted into the borehole slowly to prevent accidental detonation from impact, and tamping shall not be done directly on the primer.
O. Tamping poles shall be constructed of wood and/or nonsparking materials.

P. Unused explosives, detonators, and blasting agents shall be returned to the magazine or storage facility upon completion of loading activities and prior to firing the blast.

Q. Equipment and machinery used to load or stem boreholes shall not be operated over loaded boreholes for any reason. Areas containing loaded boreholes shall be guarded or barricaded and posted to prevent unauthorized entry.

R. Blast warning signals shall be established and posted at the mine. Audible warning signals shall be given prior to firing a blast and shall be loud enough to be heard within the entire blast area.

S. All personnel shall be removed from the blast area prior to connection to the initiation device and the firing of a blast.

T. Blasting personnel shall fire shots from a safe location.

U. A post-blast examination of the blast area shall be made by the certified blaster in charge. Other personnel shall not return to the blasting area until an all clear signal is received from the certified blaster in charge.

4VAC25-40-810. Recordkeeping.

A detailed record of each surface blast shall be prepared immediately by the certified blaster. Records shall be maintained at the mine site for three years and subject to inspection by the division mine inspectors. Records shall contain the following information:

1. Name of company or contractor;
2. Location, date, and time of blast;
3. Name, signature, and certification number of the certified blaster in charge;
4. Type of material blasted;
5. Number of holes, and burden and spacing for each hole;
6. Drill logs of boreholes as required by 4VAC25-40-1095;
7. Types of explosives used;
8. Total amount of explosives used;
9. Maximum amount of explosives per delay period of eight milliseconds or greater;
10. Method of firing and type of circuit;
11. Direction and distance in feet to nearest dwelling house, public building, school, church, commercial or institutional building neither owned nor leased by the person conducting the blasting;
12. Weather conditions (including such factors as wind directions, etc.);
13. Height or length of stemming for each hole;
14. Whether mats or other protections were used;
15. Type of detonators used and timing of detonation for each detonator used;
16. The person taking the seismograph reading shall accurately indicate exact location of seismograph, if used, and shall also show the distance of seismograph from blast;
17. Seismograph records, including seismograph readings, where required:
   a. Name and signature of the person operating the seismograph;
   b. Name of the person analyzing the seismograph record; and
   c. Seismograph reading readings;
18. Maximum number of holes per delay period of eight milliseconds or greater; and When a permanently installed seismograph is used to prove compliance, the record shall indicate the:
   a. Name of the person and company that installed the seismograph; and
   b. Name, signature, and company affiliation of the person validating the authenticity of the seismic data collected and transmitted by the permanent unit.

The information should be attached to the blast record as soon as it is available, but in no instance later than five working days after the shot; and
19. All anomalies or abnormalities occurring during the execution of the blast and actions taken to correct or address them.

4VAC25-40-880. Ground vibration from blasting.

A. Ground vibration, measured as peak particle velocity resulting from blasting, shall not exceed the limits set forth below in Figure 1 at any inhabited building not owned or leased by the operator, without approval of the director. A seismographic record shall be provided for each blast.

<table>
<thead>
<tr>
<th>Distance (D) to nearest inhabited building, feet</th>
<th>Peak Particle Velocity, inches per second</th>
</tr>
</thead>
<tbody>
<tr>
<td>0—300</td>
<td>4.25</td>
</tr>
<tr>
<td>301—5,000</td>
<td>1.00</td>
</tr>
<tr>
<td>5,001 and beyond</td>
<td>0.75</td>
</tr>
</tbody>
</table>
B. Seismic monitoring of each blast shall be conducted, unless the blast contains no more than 500 pounds of explosives and the scaled distance, $D_s$, is 90 feet or more, as calculated with the following scaled distance formulas, is 90 or greater:

$$W = \left( \frac{D}{D_s} \right)^2, \quad D_s = \frac{D}{\sqrt{W}}$$

Where:

$W =$ Maximum charge weight of explosives in pounds per delay period of 8.0 milliseconds or more.

$D =$ Distance in feet from the blast site to the nearest inhabited building not owned or leased by the mine operator.

C. The operator may use the alternative ground vibration limits shown below to determine the maximum allowable ground vibration. If these limits are used, a seismographic record including both particle velocity and vibration frequency levels shall be kept for each blast. Ground vibration levels and airblast levels are taken from the Blasting Guidance Manual.


Each operator shall maintain a plan to control the effects of blasting on areas adjacent to the operation. This plan will be documented and made available for review by the Division of Mineral Mining upon request. In the event of a blasting complaint, accident, or flyrock incident, the plan will be subject to review and approval of the division.
4VAC25-40-910. Seismic testing and evaluation.

Seismic testing and evaluation to determine compliance with blasting regulations shall:

1. Utilize acceptable instrumentation which measures ground vibration, airblast air overpressure, and vibration frequency when applicable;
2. Be conducted and analyzed by a qualified person; and
3. Be conducted whenever directed by the division.


In the event of a blasting complaint, accident, or flyrock investigation, all available data on the blast, including videos, shall be made available to the division.


A. An automatic backup alarm which is audible above surrounding noise levels shall be provided on heavy duty mobile equipment which has and mine vehicles with an obstructed view to the rear.

B. An automatic reverse-activated strobe light may be used at night in lieu of an audible reverse alarm.

Part XII

Electricity Surface and Underground

4VAC25-40-2015. Installation of electrical circuits; supervision of electrical work.

A. Electrical equipment and circuits shall be installed in accordance with the standards in the National Electrical Code, unless provided for in this part.

B. All work on new electric systems or modifications to existing electric systems performed in accordance with the National Electrical Code and this part shall be done by, or under the direct supervision of, a certified electrical repairman or other appropriately licensed electrical repairman. Routine maintenance of electrical systems and equipment where no changes are being made to the system or the equipment may be performed by a competent person who has received task training in the work from an appropriately licensed or certified electrical repairman.
4VAC25-40-2550. Confined space hazard.

A safety harness attached to an attended life line shall be worn by persons before they enter bins, hoppers, silos, tanks, surge, or storage piles confined spaces. Persons No person shall not enter the above areas any confined space until the supply and discharge of materials has ceased and the supply and discharge equipment is has been locked out and tagged out. No person shall enter an area where they are exposed to entrapment by the caving or sliding of loose, unconsolidated material. Also see 4VAC25-40-1740 No person shall enter a confined space unless the area is provided with adequate ventilation.


Hitches and slings used to hoist materials shall be of safe design, maintained in a safe condition so as to avoid safety hazards, and used in a safe manner.


Persons shall stay clear of suspended loads. Suspended loads shall be handled or secured in a manner to prevent their unintentional release.

4VAC25-40-3328. Certified underground blaster.

Shots shall be fired by a certified underground blaster A certified underground blaster shall be in direct charge of all blasting activities and shall fire all shots.

4VAC25-40-9999

DOCUMENTS INCORPORATED BY REFERENCE (4VAC25-40)

1996 Threshold Limit Values and Biological Exposure Indices published by the American Conference of Governmental Industrial Hygienists

American Table of Distances, 1991 edition, published by the Institute of Makers of Explosives

National Electrical Code, 2008 edition, published by the National Fire Protection Association


