



Proposed Regulation Agency Background Document

Agency name	Department of Mines, Minerals and Energy
Virginia Administrative Code (VAC) citation	4 VAC 25 - 40
Regulation title	Safety and Health Regulations for Mineral Mining
Action title	Technical Corrections and Amendments for Clarity, Consistency and Improved Safety Resulting from Periodic Review
Date this document prepared	June 25, 2008

This information is required for executive branch review and the Virginia Registrar of Regulations, pursuant to the Virginia Administrative Process Act (APA), Executive Orders 36 (2006) and 58 (1999), and the *Virginia Register Form, Style, and Procedure Manual*.

Brief summary

In a short paragraph, please summarize all substantive changes that are being proposed in this regulatory action.

As a result of periodic review, the Department of Mines, Minerals and Energy (DMME) is amending 4VAC25-40, Safety and Health Regulations for Mineral Mining. The amendments are intended to improve this chapter by making technical corrections, clarifying unclear language, updating references, making the regulation internally consistent and consistent with the Code of Virginia, and strengthening certain provisions relating to mine safety. Sections to be strengthened relate to blasting, mine rescue, and construction and maintenance of mine structures.

Legal basis

Please identify the state and/or federal legal authority to promulgate this proposed regulation, including (1) the most relevant law and/or regulation, including Code of Virginia citation and General Assembly chapter number(s), if applicable, and (2) promulgating entity, i.e., the agency, board, or person. Describe the legal authority and the extent to which the authority is mandatory or discretionary.

The Department of Mines, Minerals and Energy is authorized to promulgate regulations necessary to the performance of its duties under §45.1-161.3 of the Code of Virginia. §§45.1-161.294 and 45.1-161.305 require that the Director of the Department promulgate regulations to ensure safe working conditions and practices at underground and surface mineral mines, respectively. This authority is mandatory.

Purpose

Please explain the need for the new or amended regulation by (1) detailing the specific reasons why this regulatory action is essential to protect the health, safety, or welfare of citizens, and (2) discussing the goals of the proposal, the environmental benefits, and the problems the proposal is intended to solve.

The purpose of the regulation at 4VAC25-40, Safety and Health Regulations for Mineral Mining, is to provide for the protection of persons and property on and around mineral (non-coal) mines. The proposed action is the result of periodic review. Even though no public comments were received during the review comment period, agency staff identified sections that would benefit from amendments as proposed herein. The amendments will improve this chapter by making technical corrections, clarifying unclear language, updating references, making the regulation internally consistent and consistent with the Code of Virginia, and strengthening certain provisions relating to mine safety. Because the regulation is specifically intended to protect persons and property from the effects of mining, the agency has determined that the proposed amendments are essential to protect the health, safety and welfare of citizens.

Substance

Please briefly identify and explain the new substantive provisions, the substantive changes to existing sections, or both where appropriate. (More detail about these changes is requested in the "Detail of changes" section.)

The intended action will amend provisions of an existing regulation. Unclear language in various sections will be clarified. Sections identified for clarification are those dealing with examination and inspection of workings, compliance with regulations, repairing machinery, exposure to airborne contaminants, loaders in operation, scaling bars, and open flame restrictions.

Several sections will be amended to make them internally consistent with other sections and with the Code of Virginia. References to external documents and the Code of Virginia will be corrected to reflect more recent publication dates of those documents; references to federal and other agencies that have changed their names will be updated. Corrections will be made to typographical and other technical errors.

In Part XV of the chapter, a number of sections will be moved to different articles to more efficiently organize the rules. Six sections dealing with mine rescue and evacuation will be moved from Article 2, Fire Prevention and Control, to Article 9, Safety Program. The heading for Article 6, Loading, Hauling, and Dumping, will be moved from the beginning of 4VAC25-40-3590 to the beginning of 4VAC25-40-3560 to fully encompass sections dealing with hauling. The heading for Article 10, Personnel Hoisting, will be moved from the beginning of 4VAC25-40-4090 to the beginning of 4VAC25-40-4070 to fully encompass sections dealing with hoisting.

During the periodic review, the agency identified sections dealing with mineral mine safety that would benefit from being strengthened. The agency intends to add a section requiring drill logs for boreholes intended for blasting. The agency also intends to amend other sections dealing with blasting to: require reporting of flyrock incidents; require review of drill logs before blasting; require that areas containing

loaded boreholes be posted as well as barricaded, if not guarded; require that drill logs be kept as part of the blast record; and require that electronic detonation systems be of an approved type. Regarding underground rescue in mineral mines, the agency intends to amend and generally strengthen sections dealing with mine rescue stations, equipment, crews, and self-contained breathing apparatus. Also for the purpose of improved safety, the agency intends to add one new section requiring that structures be substantial and well maintained.

Issues

Please identify the issues associated with the proposed regulatory action, including:

- 1) the primary advantages and disadvantages to the public, such as individual private citizens or businesses, of implementing the new or amended provisions;*
- 2) the primary advantages and disadvantages to the agency or the Commonwealth; and*
- 3) other pertinent matters of interest to the regulated community, government officials, and the public.*

If the regulatory action poses no disadvantages to the public or the Commonwealth, please so indicate.

The proposed action will provide certain advantages to the public, particularly those who live near or work in mineral mines. Strengthening sections dealing with preparations for blasting and requiring mine operators to have a plan to minimize the affects of blasting on adjacent properties are intended to reduce citizen complaints related to blasting. The strengthening of mine safety provisions such as those dealing with underground mine rescue and self-rescue devices will improve worker safety. Correcting existing unclear, inconsistent, or incorrect language will make the regulation more accurate and easy to understand. No disadvantages are foreseen for the public.

Since the amended regulations will be enforced with existing personnel in existing programs, there will be no additional cost or any other anticipated disadvantages for the Commonwealth.

At least one of the amended provisions will cause some mineral mine operators to incur additional costs, but the magnitude of these costs is not considered by the agency to be excessive in proportion to the safety benefits returned.

Requirements more restrictive than federal

Please identify and describe any requirement of the proposal which are more restrictive than applicable federal requirements. Include a rationale for the need for the more restrictive requirements. If there are no applicable federal requirements or no requirements that exceed applicable federal requirements, include a statement to that effect.

In addition to regulations promulgated and enforced by Virginia's Department of Mines, Minerals and Energy, certain activities on mineral mine sites are also regulated by the U.S. Department of Labor, Mine Safety and Health Administration (MSHA) under 30 CFR Parts 1 through 199. The following sections of the proposed amendments contain language that could be interpreted as more restrictive than the applicable federal requirements, but DMME has determined that they are essential for meeting the intended purpose of the regulation, which is to protect people who work in or live near mineral mines:

4VAC25-40-130

MSHA requires that an examination be made during the shift by a competent person, rather than a beginning of shift examination by a certified mine foreman as required in the Virginia rule. Examination at the beginning of a shift is considered by DMME to be important for eliminating any hazardous conditions that may be present before workers enter an area; the agency considers the certified foreman to be the

person most responsible for assuring safe conditions for workers. MSHA does not require a written report of hazards found and corrective actions taken. DMME considers these reports to be essential for investigating accidents and incidents.

4VAC25-40-800

MSHA requires all persons directing blasting to be experienced and trained, but does not require a certified blaster to be in charge. DMME considers the certification of blasters and the requirement that such a certified person be in charge of blasting operations to be critical in ensuring the safe use of explosives in mining. MSHA has no specific requirements for the blaster to monitor weather and review drill logs. DMME considers the monitoring of weather conditions and the reviewing of drill logs to be essential safe blasting practices.

4VAC25-40-810

MSHA has no requirements on maintaining records of blasts. DMME considers blast records to be essential, for example, in investigating flyrock incidents and citizen complaints.

4VAC25-40-880, 4VAC25-40-890, and 4VAC25-40-893

MSHA has no requirements for monitoring ground vibration or air overpressures generated by blasting, nor do they have a requirement for controlling the offsite effects of blasting. MSHA's mandate is solely mine worker safety; DMME's role in protecting adjacent property owners from the effects of blasting is consistent with the agency's mission and citizens' expectations.

4VAC25-40-1095

MSHA has no requirements for generating a drill log of blast holes. DMME considers drill logs to be a critical component of proper blast design, and an important resource during investigations of improper blasting.

Localities particularly affected

Please identify any locality particularly affected by the proposed regulation. Locality particularly affected means any locality which bears any identified disproportionate material impact which would not be experienced by other localities.

Mineral mines governed by this regulation are present in 91% of Virginia's counties. The Department has determined that local governments will bear no material impact, and that all localities having mineral mines will be equally affected by this action.

Public participation

Please include a statement that in addition to any other comments on the proposal, the agency is seeking comments on the costs and benefits of the proposal and the impacts of the regulated community.

In addition to any other comments, the agency is seeking comments on the costs and benefits of the proposal and the potential impacts of this regulatory proposal. Also, the agency is seeking information on impacts on small businesses as defined in § 2.2-4007.1 of the Code of Virginia. Information may include 1) projected reporting, recordkeeping and other administrative costs, 2) probable effect of the regulation on affected small businesses, and 3) description of less intrusive or costly alternative methods of achieving the purpose of the regulation.

Anyone wishing to submit written comments may do so by mail, email or fax to David B. Spears, Regulatory Coordinator, Department of Mines, Minerals and Energy, 202 North Ninth Street, Richmond,

Virginia 22903; email David.Spears@dmme.virginia.gov; fax 804-692-3237. Written comments must include the name and address of the commenter. In order to be considered comments must be received by the last date of the public comment period.

A public hearing will be held and notice of the public hearing may appear on the Virginia Regulatory Town Hall website (www.townhall.virginia.gov) and can be found in the Calendar of Events section of the Virginia Register of Regulations. Both oral and written comments may be submitted at that time.

Economic impact

Please identify the anticipated economic impact of the proposed regulation.

Projected cost to the state to implement and enforce the proposed regulation, including (a) fund source / fund detail, and (b) a delineation of one-time versus on-going expenditures	The amended regulation will be enforced with existing personnel within existing programs. No additional costs to the state are projected.
Projected cost of the regulation on localities	No additional costs are projected for localities.
Description of the individuals, businesses or other entities likely to be affected by the regulation	This regulation affects businesses operating mineral (non-coal) mines and quarries in Virginia.
Agency's best estimate of the number of such entities that will be affected. Please include an estimate of the number of small businesses affected. Small business means a business entity, including its affiliates, that (i) is independently owned and operated and (ii) employs fewer than 500 full-time employees or has gross annual sales of less than \$6 million.	There are approximately 440 mineral mines distributed throughout the Commonwealth. Most of these are small businesses.
All projected costs of the regulation for affected individuals, businesses, or other entities. Please be specific. Be sure to include the projected reporting, recordkeeping, and other administrative costs required for compliance by small businesses.	Only the amendment at 4VAC25-40-893 requiring mine operators to maintain a plan to control the affects of blasting on adjacent areas is projected to cause additional expense for businesses. Mineral mines required to develop such a plan will incur an estimated average one-time cost of approximately \$300. There are about 130 such businesses in Virginia.

Alternatives

Please describe any viable alternatives to the proposal considered and the rationale used by the agency to select the least burdensome or intrusive alternative that meets the essential purpose of the action. Also, include discussion of less intrusive or less costly alternatives for small businesses, as defined in §2.2-4007.1 of the Code of Virginia, of achieving the purpose of the regulation.

During the periodic review and the preparation of the Notice of Intended Regulatory Action, the Department considered the alternative of taking no action. The agency determined, however, that taking no action would result in a regulation containing sections that were unclear, inaccurate, inconsistent, and

not as specific as necessary for achieving the intended purpose of protecting public health and safety in the most cost-effective manner. A less intrusive and less costly alternative for mine rescue plans for very small mines was considered, was determined to meet the essential purpose of the regulation, and has been included in the proposed changes. Although taking this action is considered by the Department to be the most effective means of updating the regulation, the agency will continue to seek public input to identify alternatives.

Regulatory flexibility analysis

Please describe the agency’s analysis of alternative regulatory methods, consistent with health, safety, environmental, and economic welfare, that will accomplish the objectives of applicable law while minimizing the adverse impact on small business. Alternative regulatory methods include, at a minimum: 1) the establishment of less stringent compliance or reporting requirements; 2) the establishment of less stringent schedules or deadlines for compliance or reporting requirements; 3) the consolidation or simplification of compliance or reporting requirements; 4) the establishment of performance standards for small businesses to replace design or operational standards required in the proposed regulation; and 5) the exemption of small businesses from all or any part of the requirements contained in the proposed regulation.

The agency has determined that less stringent compliance or reporting requirements, less stringent schedules or deadlines, simplification of reporting requirements, the establishment of performance standards to replace the regulation, or the exemption of small businesses would not meet the essential purpose of the regulation, which is to protect the health and safety of people working in or living near mineral mines. While the proposed amendments to this chapter are projected to have a moderate impact on small business, the agency nonetheless deems this action to be necessary.

Public comment

Please summarize all comments received during public comment period following the publication of the NOIRA, and provide the agency response.

No comments were received during the public comment period following the publication of the NOIRA.

Family impact

Please assess the impact of the proposed regulatory action on the institution of the family and family stability including to what extent the regulatory action will: 1) strengthen or erode the authority and rights of parents in the education, nurturing, and supervision of their children; 2) encourage or discourage economic self-sufficiency, self-pride, and the assumption of responsibility for oneself, one’s spouse, and one’s children and/or elderly parents; 3) strengthen or erode the marital commitment; and 4) increase or decrease disposable family income.

The regulation at 4VAC25-40, Safety and Health Regulations for Mineral Mining, is intended to protect the health and safety of people working in or living near active mineral (non-coal) mines in Virginia. The current action, which is aimed at correcting, clarifying and strengthening this chapter, will increase the protection presently offered by the regulation. It will, therefore, provide additional protection to families who have members working in or living near mineral mines. The Department of Mines, Minerals and

Energy anticipates that the action will have no impact on the authority and rights of parents, economic self-sufficiency of families, the marital commitment, or disposable family income.

Detail of changes

Please detail all changes that are being proposed and the consequences of the proposed changes. Detail all new provisions and/or all changes to existing sections.

If the proposed regulation is intended to replace an emergency regulation, please list separately (1) all changes between the pre-emergency regulation and the proposed regulation, and (2) only changes made since the publication of the emergency regulation.

Current section number	Proposed new section number, if applicable	Current requirement	Proposed change and rationale
4VAC25-40-25		Refers to Mineral Mine Safety Law of Virginia, 1997 edition	Change to Mineral Mine Safety Law of Virginia, 2005 edition; updates reference to reflect most current edition
4VAC25-40-90		Incorporates by reference National Electrical Code, 1996 edition, and Boiler and Pressure Vessel Regulations, 1995	Change to National Electrical Code, 2008 edition, and Boiler and Pressure Vessel Regulations, 2007; updates references to reflect most current editions
4VAC25-40-120		Only the certified surface foreman may conduct the preshift examination	Change "surface foreman" to "mine foreman"; corrects the requirement and clarifies that it applies to both surface and underground operations; change "preshift examination" to "examination made at the beginning of each shift"; makes section consistent with subsequent sections
4VAC25-40-130		The certified mine foreman shall examine workings for hazards at the beginning of each shift and make a record of the examination	Specifies that the report of examination shall include date, areas examined, time of examination, hazards found, and corrective actions taken, and that the record shall be signed by the foreman; clarifies expected contents of records of examination
4VAC25-40-190		Mine employees shall comply with regulations	Change "mine employees" to "miners"; many workers are contractors and are therefore not actually employees of the mine; clarifies that the requirement applies to all workers
4VAC25-40-260		Areas containing hazards that are not "immediate" obvious shall be barricaded or posted with warnings	Change "immediate" to "immediately"; corrects an error in the existing language
4VAC25-40-350		Energy sources other than those related to electricity or internal combustion shall be tagged out and signed during repairs	Add references to sections covering electrical and internal combustion energy sources; clarifies that those sources are also subject to tag-out requirements but are covered under separate sections. Changes "signed by the individuals doing the work" to "marked by means that identifies the individuals doing

			the work”; allows for greater flexibility in using various appropriate tag-out devices
	4VAC25-40-365	New	New section specifies that structures shall be of substantial construction and maintained in safe condition; intended to improve the safety of workers.
4VAC25-40-410		Current language reads “Benches shall be wide enough to allow safe operation and passage equipment.”	Change to “Benches shall be wide enough to allow safe operation and passage of equipment.” Corrects a typographical error in the existing language.
4VAC25-40-720		Requires control of employee exposure to airborne contaminants by feasible engineering methods. If such methods are not available, requires an “approved program” to be implemented. Requires the wearing of “permissible” respiratory equipment	Clarifies that the “approved program” be one “of controlling employee exposure to airborne contaminants”; provides specificity to a previously vague passage. Replaces “permissible” with “approved”, and adds that the approved equipment be “appropriate for the hazard.” “Approved” is more accurate than “permissible”, which has a specific meaning in federal regulations, and “appropriate for the hazard” adds clarity.
4VAC25-40-780		Requires that structures for storing explosives shall be “constructed substantially”; requires reporting of unaccounted loss of explosives to U.S. Department of Treasury Bureau of Alcohol, Tobacco and Firearms	For consistency with other sections, changes language to “of substantial construction...”; for correctness, updates reference to federal agency that has changed its name to “U.S. Department of Justice, Bureau of Alcohol, Tobacco, Firearms and Explosives”
4VAC25-40-800		Design of blasts shall prevent flyrock; blast sites shall be inspected and safeguarded before bringing explosives to the site.	Adds a requirement that flyrock incidents shall be reported to the Division of Mineral Mining immediately; this effort is to increase public safety near mineral mines in response to increased incidents of flyrock. For clarity and improved safety, another change specifies that the certified blaster in charge shall conduct the preblast site inspections and shall review drill logs of boreholes intended for blasting
4VAC25-40-810		Detailed records of each surface blast shall be prepared and maintained by the certified blaster	Adds requirements that the blast record shall include drill logs of boreholes, timing of detonations for each detonator, and a record of all anomalies and actions taken to correct them. These changes are proposed for increased safety.
4VAC25-40-880		If seismic monitoring of blasts is not conducted, the maximum weight of explosives used will be limited using a scaled distance formula	Change language to state that seismic monitoring will be conducted unless calculated scaled distance exceeds 90; this reduces allowed ground vibration at inhabited buildings not owned by the mine operator, thereby decreasing likelihood of damage to neighboring properties.
4VAC25-40-890		Limits allowable air blast at nearby inhabited buildings	Set a single limit of 133 decibels as measured with a 2Hz or lower flat response

		to 129 decibels, or alternate limits as measured by microphones with different frequency responses	microphone. This type of microphone is now standard on air blast measuring equipment; other types as listed in the existing language are no longer in use
	4VAC25-40-893	New	Requires that mine operators maintain an action plan to reduce the affect of blasting on neighboring properties; intended to increase public safety and reduce blasting-related complaints
	4VAC25-40-925	New	Requires that electronic detonation systems be approved by the Director and used according to manufacturer's instructions. This is a fairly new technology that is becoming more widespread; the new section assures that the types to be employed have been approved as safe.
	4VAC25-40-1095	New	Lists required information to be included in logs of drill holes intended for blasting; assures that logs adequately describe downhole conditions that may affect the safety of a blast. Intended to ensure safe blasting.
4VAC25-40-1600		Persons shall not work under buckets of loaders in operation	Expands requirement to include that persons shall remain clear of all operating mobile equipment, not just loaders; intended to improve worker safety
4VAC25-40-2790		Miners shall test the rock walls of their working areas for loose material	Require testing of walls "where possible"; some areas are simply inaccessible, due to height, for example, and cannot be routinely tested
4VAC25-40-2800		A bar of proper length and blunt on one end shall be provided for scaling, the removal of loose material	Replace "of proper length and blunt on one end" with "of proper length and design". Blunt may not be the most useful design for this purpose
4VAC25-40-2980		Open flames and candles shall not be left underground	Remove reference to candles, which are no longer used in modern mining, and state that open flame torches shall be attended at all times while lit; this is a clarification for improved safety
4VAC25-40-3050		Mines employing 75 or more people underground shall be equipped with 10 sets of self-contained breathing apparatus or be affiliated with a central mine rescue station	Strike and insert language as new 4VAC25-40-4061 in Article 9; amend as noted below
4VAC25-40-3060		Mines not maintaining their own rescue stations shall affiliate with a central or cooperative rescue station	Strike entirely; section is duplicative with new language in 4VAC25-40-4061
4VAC25-40-3070		Mine rescue apparatus acceptable to MSHA shall be maintained for immediate use; equipment shall be tested monthly	Strike and insert language as new 4VAC25-40-4062 in Article 9; amend as noted below

4VAC25-40-3080		Mines employing 75 or more people underground shall maintain at least two rescue crews and the crews shall train at least annually. Smaller mines shall have at least one person trained for every 10 working underground	Strike and insert language as new 4VAC25-40-4063 in Article 9; amend as noted below. Provision for small mines is now covered in new 4VAC25-40-4064
4VAC25-40-3090		Rescue crews shall include supervisory personnel	Strike entirely; section is duplicative with new language in 4VAC25-40-4063
4VAC25-40-3110		Mine evacuation drills shall be held every six months	Strike and insert language as new 4VAC25-40-4065 in Article 9
4VAC25-40-3120		All persons who work underground shall receive annual training in evacuation plans	Strike and insert language as new 4VAC25-40-4066 in Article 9; amend as noted below
4VAC25-40-3800		Ladders inclined more than 70 degrees shall have backguards, landing gates, and landings every 30 feet	Fixed ladders shall have the same safeguards as 4VAC25-40-1990 and 4VAC25-40-2000; makes ladder safety requirements consistent throughout chapter
4VAC25-40-3830		Rescue areas shall be equipped with compressed air lines and water lines	Amend to "adequate air and water supplies"; allows for bottled air and water to fulfill requirement. Add requirement for telephones in refuge areas for improved communications during emergencies
4VAC25-40-3840		Mines must have escape and evacuation plans	Add requirement that evacuation plans be available to affiliated mine rescue teams; specify information to be shown on mine maps included in the plans, including all underground workings, ventilation fans, refuge chambers, first aid and firefighting supplies, electrical controls, and fuel and explosives storage areas; require plans for fire prevention, warning, evacuation, and emergency medical assistance; require specific statement of location and availability of mine rescue personnel and their training
4VAC25-40-3990		One-hour self-rescue devices shall be available to underground personnel	Amend to also require a written plan for the number, type, and location of self-rescue devices, and that they be sufficient for the number of people working underground and the possible hazards of the mine; intended to improve worker safety.
4VAC25-40-4060		Workers required to go underground shall be trained annually in mine emergency procedures and the use of self-rescue devices	Clarify that emergency training shall be in applicable sections of U.S. Bureau of Mines Instruction Guide 19; specify that self-rescue training be given by a competent person using the same model of device as provided to worker; this ensures adequate training for emergencies
	4VAC25-40-4061		Insert language from existing 4VAC25-40-3050 and amend to specify that affiliated mine rescue stations be able to provide two fully equipped mine rescue teams, and that

			such affiliation shall be in writing and approved by the Director; ensures adequate mine rescue capabilities
	4VAC25-40-4062		Insert language from existing 4VAC25-40-3070 and amend to specify that records of equipment tests be kept for at least one year; makes consistent with other recordkeeping requirements in the chapter
	4VAC25-40-4063		Insert language from existing 4VAC25-40-3080 and amend to clarify that each rescue crew shall be five persons; add requirement that rescue crews shall include supervisory and key mine personnel; this requirement is being moved from 4VAC25-40-3090 to simplify the organization of these sections
	4VAC25-40-4064		Offer alternative mine rescue capabilities for mines with fewer than 75 people working underground, with approval of Director. This alternative lessens the burden on small businesses.
	4VAC25-40-4065		Insert language from existing 4VAC25-40-3110; mine evacuation drill shall be held every six months
	4VAC25-40-4066		Insert language from existing 4VAC25-40-3120 and amend to clarify that all persons who work underground shall be instructed in evacuation plans; intended to improve worker safety
4VAC25-40-4240		Wire ropes shall meet certain minimum strength requirements	Correct two typographical errors: in subsection 2, replace "0.005L " with "0.0005L"; in subsection 3, replace "Tail ropes" with "Tail ropes"
4VAC25-40-4260		Wire ropes shall be examined for damage	Correct one typographical error; in subsection E, second sentence, replace "subsection D" with "subsection B"
4VAC25-40-4400		Buckets used to hoist persons in shafts over 50 feet deep shall have safety catches and protective bonnets	Amend to specify that such buckets shall have adequate guide ropes; this is intended to improve worker safety