

Virginia Regulatory Town Hall

Notice of Intended Regulatory Action Agency Background Document

Agency Name:	Virginia Department of Mines, Minerals, and Energy
VAC Chapter Number:	4 VAC 25-90
Regulation Title:	Rules and Regulations Governing the Use of Diesel Powered Equipment in Underground Coal Mines
Action Title:	Preliminary Notice of Regulatory Action
Date:	September 27, 1999

This information is required prior to the submission to the Registrar of Regulations of a Notice of Intended Regulatory Action (NOIRA) pursuant to the Administrative Process Act § 9-6.14:7.1 (B). Please refer to Executive Order Twenty-Five (98) for more information.

Purpose

Please describe the subject matter and intent of the planned regulation. This description should include a brief explanation of the need for and the goals of a new or amended regulation.

The Department of Mines, Minerals, and Energy (DMME) is proposing to amend the Rules and Regulations Governing the Use of Diesel Powered Equipment in Underground Coal Mines to ensure that coal mining is performed safely and efficiently. The proposed amendments were recommended in the Executive Order Fifteen (94) report.

The regulation is needed to ensure underground miners are protected from the effects of diesel exhaust and to encourage more productive mining practices. The regulation addresses general requirements, operation and maintenance, ventilation, air quality, fire protection, and diesel fuel.

Amendments to the regulation are needed to address important hazards not addressed by the Mines Safety and Health Administration (MSHA), reflect recent amendments to, and avoid conflicts with, MSHA regulations and federal law, reflect changes in technology, and eliminate duplicative information. These revisions, along with less substantive ones, were recommended by the industry and labor representatives that served on the regulatory review committee.

The proposed regulation is needed to protect miners from diesel exhaust which may pose health hazards to workers and to encourage productive mining through the efficient uses of diesel-powered equipment. Safe, productive workers and mines accrue benefits to the public's health, safety and welfare. Many of the amendments to the regulation were recommended by the industry and labor representatives that served on the regulatory review committee and in the Executive Order Fifteen (94) report.

Basis

Please identify the state and/or federal source of legal authority to promulgate the contemplated regulation. The discussion of this authority should include a description of its scope and the extent to which the authority is mandatory or discretionary. The correlation between the proposed regulatory action and the legal authority identified above should be explained. Full citations of legal authority and web site addresses, if available, for locating the text of the cited authority should be provided.

The DMME has the legal authority to amend this regulation under the Coal Mine Safety Act, Sections 45.1-161.3, 45.1-161.106, and 45.1-161.206 of the Code of Virginia. Section 45.1-161.206 mandates this regulation.

The Virginia Mine Safety Act, §§ 45.1-161.3, and 45.1-161.106, give DMME the authority to promulgate these regulations in the interest of coal mine safety. The latter citation specifically addresses the maintenance, operation, and transportation of any mechanical or electrical equipment, device or machinery used for any purpose in the underground mining of coal. It also cites that regulations shall relate to the "safety and health standards for the protection of life, health, and property of, and the prevention of injuries to, persons involved in or likely to be affected by any underground coal mining operations which shall include...ventilation and equipment."

Section 45.1-161.206 states that diesel powered equipment may be used underground with the written approval of the Chief and that the Chief shall promulgate regulations necessary to carry out the provisions of this section. It also specifies that there shall be good ventilation for a safe, healthful working environment, that the minimum amount of air needed to operate must be included on the approval plate on the machine, and that the equipment must be maintained to meet the manufacturers specifications.

In addition, § 45.1-161.107 directs the Chief to consider the number of factors in regulatory development; the federal mine safety law, standards generally recognized by the coal mining industry or set by recognized professional organizations and the results of research and other information that is available regarding the highest degree of protection and the latest technology.

The new Mine Safety and Health Administrations (MSHA) regulation on approval, exhaust gas monitoring and safety requirements for the use of diesel powered equipment in

underground coal mines (30 CFR Parts 7, et. al.) was reviewed to make sure there were no conflicts with the proposed state regulation and there were no specific mandates on the State.

Substance

Please detail any changes that would be implemented: this discussion should include a summary of the proposed regulatory action where a new regulation is being promulgated; where existing provisions of a regulation are being amended, the statement should explain how the existing regulation will be changed. The statement should set forth the specific reasons the agency has determined that the proposed regulatory action would be essential to protect the health, safety or welfare of citizens. In addition, a statement delineating any potential issues that may need to be addressed as the regulation is developed shall be supplied.

The regulation is essential to protect workers by preventing health problems, accidents and fatalities in work that is inherently dangerous. Improper conditions and actions are a significant cause of injuries and fatalities.

The regulation governs working conditions at coal mines. A safe work environment and work practices reduces accidents that may result in reduced family income and increased family stress. Reducing accidents decreases these factors and has positive family impact. Ensuring that workers and operators know how to perform their jobs safely and efficiently has a generally positive effect in areas around coal mines through protection of the public health, safety and welfare from adverse effects of mining operations. The regulation has no effect on family formation, stability, or autonomy.

The proposed requirements are organized under new subject headings and rewritten for clarity and ease of understanding. They are revised to address changes made in Virginia's Coal Mine Safety Act, to address important hazards not addressed by the Mine Safety and Health Administration (MSHA), avoid conflicts with MSHA regulations and federal law, reflect changes in technology, and eliminate duplicative information.

The first section in Part I proposes to add definitions of important terms used in the regulation not defined in the state mining law and which are consistent with MSHA; "equipment data plate" and "heavy-duty diesel-powered equipment."

The second section contains the most substantial revisions to the regulation. It modifies the regulations stricken in the first section. It proposes that operators would be required to:

1. use a catalytic converter on newly purchased underground diesel-powered equipment and on all existing equipment of this type by January 1, 2003; and
2. provide a diesel particulate matter filter capable of removing an average of 75% of diesel particulate by mass, or a filter meeting MSHA requirements, whichever is greater, on permissible and heavy-duty underground diesel-powered equipment by the same dates noted above.

This section of the proposed regulation also:

1. allows a designated representative of the Chief to approve equipment;
2. requires the manufacturer to certify the equipment with a permanently-affixed data plate located in the operator's compartment (currently required but a location is not specified);
3. requires the operator to comply with MSHA design and performance requirements in Part 36;
4. revises the ventilation plan regulation so that operators only need to report changes annually instead of whenever plans change;
5. moves the requirement for stationary equipment from another section; and
6. modifies the regulation to clarify that the Chief or his designated representative have authority to grant approval to alterations in the design of diesel-powered equipment used underground.

The operation and maintenance of underground diesel equipment contributes greatly to safety. Part II describes the minimum requirements for using and maintaining this mobile equipment in coal mining.

In the operation of diesel equipment section, the first requirement is proposed to be to section C to improve the order of the regulation. Additional requirements for mobile equipment use are proposed to be added to A and B and to be consistent with MSHA regulations. Section D is proposed to be moved from an existing section (L) to create a logical sequence in the listing of requirements. Section E is proposed to be modified to be consistent with MSHA regulations; it now delineates the steps to be taken when diesel equipment is not in compliance with the regulation. Section J is proposed to be deleted because self-rescuers are required for all employees, not just those subject to the regulation. Section M is proposed to be moved to Part I because it is more appropriate to the subject matter.

In the second section of Part II, maintenance of diesel machines, information is proposed to be moved from 4 VAC 25-90-300 and a new section created to improve clarity and to incorporate terminology which is consistent with Virginia law. Section A proposes to set forth the qualifications of the person required to inspect equipment and makes an *authorized person* responsible for inspections each shift instead of a *competent person*. Sections B and D proposes to add a requirement that engines be inspected by a certified diesel engine mechanic to ensure that a qualified person performs this important task. E is proposed to be modified to ensure that manufacturer standards are on the name plate and verified by the operator.

Ventilation is an essential component of safe use of diesel engines underground. Part III proposes to describe the steps that must be taken to ensure good ventilation and consolidate the information on record keeping in the regulation. Requirements A - G are proposed to be

moved from 4 VAC 25-90-120. A sentence is proposed to be deleted in G because air is no longer required to be measured along haulageways.

In Part IV, Air Quality, requirements are proposed to be moved from elsewhere in the regulation and B and C are proposed to be modified to reduce the frequency of air quality measurements where machines are in operation from once per shift to once per day and at additional times when designated by the Chief, to be less burdensome to operators. Likewise, in the third section, proposed air quality measurements will be reduced from two to one per shift in the immediate return for each working section during the on-shift examination when diesel equipment is in operation. If a problem arises, the Chief may require additional tests.

In other subsections, minor changes are proposed to be made to improve the wording. Section F is proposed to be modified to delete references to approval of various measurement methods because this was not needed. Section G is proposed to be revised to be consistent with the use of authorized persons in state law and to clarify how long records are to be kept when equipment is removed and returned to mine property.

Part V on fire protection is proposed to be moved from elsewhere in the regulation, reworded and reordered for clarity and understanding. In A, for example, “liquid carbon or no less effective system” is proposed to be replaced with “equivalent approved system.”

In the last part on fuel, information is proposed to be moved from other parts of the regulation and information is proposed to be consolidated and simplified. In A the regulation lowers the sulfur content from .25% to .05% to be consistent with national standards set by the Environmental Protection Agency and MSHA. In B a requirement is proposed to be added to address the ignition of fuel in winter weather and the operator is required to provide information on fuel content.

In the second section, fuel storage, handling and use, sections A - I are proposed to be moved from other parts of the regulation and reworded. In addition, in Section J a more detailed requirement is proposed to be added to #1. The requirement of 1,000 gallons is proposed to be added to #3 and a storage temperature is proposed to be added to #4 to be consistent with MSHA. Number 5 is proposed to be added to address the conditions under which fuel should be stored underground.

It should be noted that MSHA has requirements for transporting fuel in containers carrying 5 gallons or less. The state did not think it was necessary to duplicate these requirements.

Alternatives

Please describe, to the extent known, the specific alternatives to the proposal that have been considered and will be considered to meet the essential purpose of the action.

Alternatives to regulation were considered as part of the Executive Order Fifteen (94) review and will again be considered during the promulgation of amendments to the regulation under the Administrative Process Act. This review has included the use of a work committee representing all those affected by the regulation (as called for in the agency participation guidelines), public hearings, and acceptance of written comments. The results of this work committee will be re-reviewed when the work committee meets to update the proposed text (attached). All options will be reviewed to select the least intrusive alternative that will achieve the essential purpose of the regulation.

The primary advantage of the regulation is that it provides increased health and safety to miners and the major disadvantage is an increased cost to a small number of operators using diesel equipment. A discussion follows.

In MSHA's publication, *Practical Ways to Reduce Exposure to Diesel Exhaust in Mining - A Toolbox*, it is pointed out that diesel-powered equipment is widely used in mining operations because its more powerful than battery-operated equipment and does not use cables which can restrict mobility. However, the use of this equipment is also a source of concern because of the health hazards posed by emissions, e.g., carbon monoxide, carbon dioxide, and oxides of nitrogen. The particulate matter in these emissions can be inhaled and kept in the lungs and increase the risk of disease (primarily cancer) and death. Therefore, it is important to reduce miners' exposure to diesel exhaust emissions, especially in underground mines.

MSHA has been working with the mining community to discuss the potential health risks, look at ways to measure and limit emissions in mines, and approaches to achieving a safe work environment, for a number of years. The result of this effort supports these conclusions:

- The levels of exposure to diesel particulate matter (DPM) in mines depend upon engine exhaust after treatment and its efficiency and, particularly in underground mines, ventilation rate and system design.
- Engine emissions are governed by engine design, work practices, duty cycle, fuel quality and maintenance. Reducing engine emissions will decrease the amount of diesel particulate matter that needs to be controlled by other means and will reduce the exposure of miners.
- There is no single emission control strategy that is a panacea for the entire mining community.
- Diesel engine maintenance is the cornerstone of a diesel emission control program.

In Virginia these findings were considered along with other scientific information stemming from development of similar regulations in neighboring states. The studies found that using catalytic converters and filters on diesel equipment could reduce the amount of toxic gases generated by diesel equipment by 90-95% and eliminate one third of the particulate matter

emitted. When used with a filter, the particulate matter is reduced still more. Thus, a catalytic converter and filter is required by the regulation because it provides an effective method for reducing the hazards of diesel equipment, especially when combined with clean fuel and good ventilation.

The regulation will also be of benefit to miners and operators in that the regulations now reflect changes in law and improvements in mining technology, address important areas not currently addressed by MSHA and avoid conflicts with federal law and regulations. They are also clearer and easier to understand, which benefits those regulated as well as the agency who must enforce the regulation. Safer mines and healthier miners generate benefits to the public at-large. Localities affected are those in southwestern Virginia in which coal mining with diesel-powered equipment occurs.