



Virginia
Regulatory
Town Hall

Proposed Regulation 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:	Notice of Regulatory Action, Proposed Regulation
Date:	September 6, 2000

This information is required pursuant to the Administrative Process Act (Section 9-6.14:9.1 *et seq.* of the *Code of Virginia*), Executive Order Twenty-Five (98), Executive Order Fifty-Eight (99), and the *Virginia Register Form, Style and Procedure Manual*. Please refer to these sources for more information and other materials required to be submitted in the regulatory review package.

Summary

Please provide a brief summary of the proposed new regulation, proposed amendments to an existing regulation, or the regulation proposed to be repealed. There is no need to state each provision or amendment or restate the purpose and intent of the regulation; instead give a summary of the regulatory action and alert the reader to all substantive matters or changes. If applicable, generally describe the existing regulation.

The Rules and Regulations Governing the Use of Diesel Powered Equipment in Underground Coal Mines are designed to ensure the health and safety of underground coal miners where diesel equipment is used. They will serve to protect miners from potential health hazards through the control of diesel engine exhaust emissions that pose potential health implications to miners. Regulation of equipment used in underground coal mining improves the overall health and safety of miners by ensuring the safe use and maintenance of diesel powered equipment in underground coal mines while encouraging productive mining.

Basis

Please identify the state and/or federal source of legal authority to promulgate the regulation. The discussion of this statutory authority should: 1) describe its scope and the extent to which it is mandatory or discretionary; and 2) include a brief statement relating the content of the statutory authority to the specific regulation. In addition, where applicable, please describe the extent to which proposed changes exceed federal minimum requirements. Full citations of legal authority and, if available, web site addresses for locating the text of the cited authority must be provided. Please state that the Office of the Attorney General has certified that the agency has the statutory authority to promulgate the proposed regulation and that it comports with applicable state and/or federal law.

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, Sections 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 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, Section 45.1-161.107 directs the Chief to consider a 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.

The Office of the Attorney General has certified that the agency has the statutory authority to promulgate the proposed regulation and that it comports with applicable state and federal laws.

Purpose

Please provide a statement explaining the need for the new or amended regulation. This statement must include the rationale or justification of the proposed regulatory action and detail the specific reasons it is essential to protect the health, safety or welfare of citizens. A statement of a general nature is not acceptable, particular rationales must be explicitly discussed. Please include a discussion of the goals of the proposal and the problems the proposal is intended to solve.

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, efficiently and in a manner that most benefits the health, safety and welfare of the citizens of the Commonwealth. The proposed amendments were recommended by the mining industry, stakeholders, and its customers.

The regulation is needed to ensure diesel equipment is safely operated and maintained and that underground miners are protected from the effects of diesel exhaust. The regulation addresses general requirements, operation and maintenance, ventilation, air quality, fire protection, and diesel fuel standards.

Amendments to the regulation are needed to address hazards not addressed by the Mine 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 requirements. These revisions, along with less substantive ones, were recommended by the industry and labor representatives that served on the regulatory review committee.

The goals of the proposed regulation are 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.

Substance

Please identify and explain the new substantive provisions, the substantive changes to existing sections, or both where appropriate. Please note that a more detailed discussion is required under the statement providing detail of the regulatory action's changes.

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 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.

Section 4 VAC 25-90-10 proposes to add definitions of terms used in the regulation not defined in the state mining law and which are consistent with MSHA; i.e., “threshold limit values.”

The second section, 4 VAC 25-90-20, contains more substantial revisions to the regulation. It modifies the regulations stricken in the first section. It also proposes that the Chief’s designated representative be authorized to approve diesel powered equipment to use in a mine provided that the equipment meets Federal requirements and the requirements of this regulation as well as meets design and performance requirements for permissible and non-permissible diesel powered equipment. It is also proposed that if a diesel particulate filter, a catalytic converter, or both, are installed on underground diesel-powered equipment, they will be installed and maintained according to manufacturer’s specifications.

This section of the proposed regulation also modifies the regulation to clarify that the Chief may impose additional requirements for the purpose of eliminating a condition or practice necessary to protect the health and safety of miners. It requires an approved plan to address ventilation, fire protection, fuel handling, storage and any other requirements as the Chief may determine when an operator uses stationary diesel equipment in underground coal mines. It also requires notification to the DMME-DM and emission testing after completion of diesel equipment alterations that affects emissions.

The proper operation and maintenance of underground diesel equipment contributes greatly to safety. Section 4 VAC 25-90-30 describes the minimum requirements for operating this equipment in underground coal mining. The order of the regulation is modified to improve the clarity and understanding of the regulation.

Section 4 VAC 25-90-40, maintenance of diesel equipment, information is proposed to be moved from 4 VAC 25-90-300 and a new section created to improve clarity and to incorporate terminology consistent with Virginia law. It proposes to set forth the qualifications of the person required to inspect equipment, to add a requirement that engines be inspected weekly by a certified diesel engine mechanic, and that engine filters be maintained. The section incorporates the use of an hour meter for engine run time.

Ventilation is an essential component for the safe use of diesel engines underground. Section 4 VAC 25-90-50 proposes to describe the steps that must be taken to ensure ventilation of diesel powered equipment. Requirements in subdivisions A - G are proposed to be moved from the original section 4 VAC 25-90-120.

4 VAC 25-90-60, Emission Testing and Evaluation sets forth the requirements for how the mine operator will measure, monitor, evaluate, and maintain diesel engine emissions. The regulatory section also requires written procedures to develop and implement these requirements.

Air Quality requirements from the original section 4 VAC 25-90-120 are proposed in 4 VAC 25-90-70 of the regulation. The section proposes to modify the location and frequency of air quality measurements to more effectively measure and evaluate exhaust emissions from operating diesel equipment and to be less burdensome to operators, at the same time

providing increased miner protection. Proposed air quality measurements will be collected in the immediate return for each working section during the on-shift examination when diesel equipment is in operation in by the loading point. If a problem arises, the Chief may require additional tests.

The section incorporates the Threshold Limit Values (TLV) for nitrogen dioxide and carbon monoxide that are most recent and protective while eliminating the TLV for nitrogen oxide. The requirement to measure sulfur dioxide, formaldehyde, and carbon dioxide was removed. Finally, emission testing and evaluation results will be required to be recorded and securely kept and available at the mine.

Section 4 VAC 25-90-80, fire protection is proposed to be moved from old section 4 VAC 25-90-270 in the regulation, reworded and reordered for clarity and understanding. In A, for example, a self contained or dry chemical liquid carbon or no less effective system, is proposed to be replaced with multipurpose dry chemical type (ABC) fire suppression system or an equivalent approved system.

Fuel specifications and use and were separated into sections 4 VAC 25-90-90 and 100 respectively. Information is proposed to be moved from other parts of the regulation and information is proposed to be consolidated and simplified. In 4 VAC 25-90-90 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 require the operator to provide information on fuel sulfur content and flash point. This information is to be kept up to date, corresponding with shipments received at the mine.

In section 4 VAC 25-90-100, fuel use, storage, handling, sections A - I are proposed to be moved from other parts of the regulation and reworded (i.e., old sections K and L). In addition, the proposed section J is reworded with detailed requirements being proposed to clarify and organize the regulation. # 1 is changed to require fuel storage greater than 1000 gallons be ventilated with intake air to the return air course or to the surface. #2 incorporates old sections K(3) and L(2), requiring an ABC type fire extinguisher and rock dust in a quantity proportionate to the quantity of fuel stored. A 48 hour and 1,000 gallon fuel storage supply limit requirement is proposed to be added to #3, while concurrently incorporating old section L(3) requirements. Proposed numbers 4 and 5 are added to address the temporary and permanent conditions under which fuel should be stored underground.

Issues

Please provide a statement identifying the issues associated with the proposed regulatory action. The term "issues" means: 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 there are no disadvantages to the public or the Commonwealth, please include a sentence to that effect.

The primary advantage of the regulation is that it provides increased health and safety to miners while simplifying and reducing the cost of exhaust monitoring. The 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 may increase the risk of disease. Therefore, it is important to reduce miners' exposure to diesel exhaust emissions, especially in underground mines.

How this reduction is achieved and to what degree, is an important issue being discussed on the national level. MSHA and NIOSH have been working with the mining community to address the potential health risks, look at ways to measure and limit diesel exhaust emissions in mines, and approaches to achieve a safe and healthy work environment where diesel powered equipment is in operation. The result of this effort supports these conclusions:

- 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.

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 or filter or both are referenced in the regulation because it can provide 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 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.

Fiscal Impact

Please identify the anticipated fiscal impacts and at a minimum include: (a) the projected cost to the state to implement and enforce the proposed regulation, including (i) fund source / fund detail, (ii) budget activity with a cross-reference to program and subprogram, and (iii) a delineation of one-time versus on-going expenditures; (b) the projected cost of the regulation on localities; (c) a description of the individuals, businesses or other entities that are likely to be affected by the regulation; (d) the agency's best estimate of the number of such entities that will be affected; and e) the projected cost of the regulation for affected individuals, businesses, or other entities.

(a) The projected cost to the state to implement and enforce the proposed regulation:

- (i) Fund Source/Fund Detail: General Fund; 0100: Permit Fees; 0218
- (ii) Budget Activity:
 - Functional Area; (728) inspection and enforcement; Program/subprogram; Mine inspections, 55503
 - Functional Area; (724) law and regulatory compliance; Program/subprogram; Mine inspections, 55503
- (iii) One-time cost vs. on-going expenditures: One time cost to DM of approximately \$6,000 for testing and monitoring equipment.

(b) The projected cost of the regulation on localities: No cost to localities.

(c) A description of the individuals, businesses or other entities that likely are to be affected by the regulation:

- Coal Companies
- Coal Miners
- Equipment Manufacturers

(d) The agency's best estimate of the number of such entities that will be affected:

- 20 Coal Companies
- 1,500 Coal Miners
- 14 Equipment Manufacturers

(e) The projected cost of the regulation for affected individuals, businesses, or other entities:

Coal companies should encounter a one-time cost of approximately \$2,000 but should experience an overall on-going savings from equipment and labor requirements due to reduced number of gases sampled and sampling frequency.

The Division of Mines has attempted to determine the number and types of existing equipment which would need to be retrofitted with a catalytic converter and filter and the cost of adding these improvements to new equipment, through an inventory of diesel equipment and a survey of equipment manufacturers. The division found that the catalytic converter and filters would be an additional expense to operators with heavy duty, nonpermissible equipment approved for use by the division. Also, the cost of retrofitting heavy duty equipment is greater.

The cost of new equipment, which is built to the specifications of the operator for a particular mine, and could be made to meet these requirements, is estimated at \$100,000 to \$250,000. There is no cost increase for operators purchasing new equipment. A more accurate estimate is difficult because of the cost of converters and filters on diesel-powered equipment varies so greatly in type and use.

The proposed requirement that lowers the sulfur content in fuel should not pose a hardship on operators because this fuel is readily available and only slightly more expensive than fuel currently being used. In addition, the requirements allow the operator to use blended fuel in winter.

There may also be an additional cost to operators for having a certified diesel mechanic perform weekly inspections, but this will depend on the qualifications of the miner currently employed by operators. Likewise, operators may need to keep better records of emissions testing if they are not already doing so.

Savings. There are also savings generated by this regulation for operators because of the change in testing frequency. The frequency of air quality measurements where machines are in operation is reduced from once per shift to once per day and 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.

The requirement to allow a designated representative of the Chief to approve equipment to be used in mines should speed processing of requests and allow them to begin work with less delay. Operators will also save time under the proposed regulation, increase efficiency and productivity and they will have more flexibility in being able to assign an authorized person to inspect equipment each shift instead of a competent person.

Savings will also result from decreased health problems from reduced exposure to diesel exhaust. This should help decrease insurance costs, resulting in savings to miners and mine companies. Reduced time lost due to illness from exposure should also result in savings and increased productivity.

Detail of Changes

Please detail any changes, other than strictly editorial changes, that are being proposed. Please detail new substantive provisions, all substantive changes to existing sections, or both where appropriate. This statement should provide a section-by-section description - or cross-walk - of changes implemented by the proposed regulatory action. Where applicable, include citations to the specific sections of an existing regulation being amended and explain the consequences of the proposed changes.

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 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.

Section 4 VAC 25-90-10 proposes to add definitions of terms used in the regulation not defined in the state mining law and which are consistent with MSHA; i.e., "threshold limit values."

The second section, 4 VAC 25-90-20, contains more substantial revisions to the regulation. It modifies the regulations stricken in the first section. It also proposes that:

1. diesel equipment may be approved by the chief's designated representative, not just the chief; and
2. the operators must meet federal requirements and the requirements of this regulation as well as meet design and performance requirements for permissible and non-permissible diesel powered equipment.

If the operator installs a diesel particulate matter filter, a catalytic converter, or both, on underground diesel-powered equipment it is required to be maintained in accordance with the manufacturer's specifications.

This section of the proposed regulation also:

1. modifies the regulation to clarify that the Chief may impose additional requirements for the purpose of eliminating a condition or practicenecessary to protect the health and safety of miners.
2. requires an approved plan to address ventilation, fire protection, fuel handling, storage and any other requirements as the Chief may determine when an operator uses stationary diesel equipment in underground coal mines.
3. requires notification to the DMME-DM and emission testing after completion of diesel equipment alterations that affects emissions.

The proper operation and maintenance of underground diesel equipment contributes greatly to safety. Section 4 VAC 25-90-30 describes the minimum requirements for operating this equipment in underground coal mining.

In the operation of diesel equipment section, the first requirement is modified to be to improve the order of the regulation. The section A was originally section I of the regulation. Additional requirements for mobile diesel equipment use are proposed to be added to be consistent with MSHA regulations. Section B replaces old section J and is changed to reflect only the operation of diesel equipment because self-rescuers are required for all employees, not just those subject to this regulation. Sections C and D are added and section E is proposed to be consistent with MSHA regulations; it now delineates the steps to be taken when diesel equipment is not in compliance with the regulation. The old section L was changed to D and the old section M proposed to be moved to section 4 VAC 25-90-20 C because it is more appropriate to the subject matter.

In present section 4 VAC 25-90-40, maintenance of diesel equipment, information is proposed to be moved from 4 VAC 25-90-300 and a new section to improve clarity and to incorporate terminology 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 day rather than that of a competent person. Sections B and D propose to add a requirement that diesel powered equipment be inspected weekly by a certified diesel engine mechanic. Section C proposes that diesel engine fuel filters be maintained. Section E is proposed to be modified as a stand alone requirement for diesel powered equipment to be fitted with an hour meter that will accurately reflect the engine run time important for maintenance. Section F remains as is and section G is the old section D.

Ventilation is an essential component of safe use of diesel engines underground. Section 4 VAC 25-90-50 proposes to describe the steps that must be taken to ensure ventilation of diesel powered equipment. Requirements in subdivisions A - G are proposed to be moved from original section 4 VAC 25-90-120 and changed to reflect current mine ventilation practices where diesel powered equipment is used.

4 VAC 25-90-60, Emission Testing and Evaluation sets forth the requirements for how the mine operator will measure, monitor, evaluate, and maintain the control of diesel engine emissions. The regulatory section also requires written procedures to develop and implement these requirements.

Specifically, the regulation requires an authorized person to perform the test on the diesel engine under load, documenting the level of RPM's at which the equipment is operating. The individual is required to test using documented sampling and analytical methods with appropriate and calibrated equipment, and must observe changes in engine performance that may affect emissions. Emissions may not exceed two times the established level. Carbon monoxide emissions for that engine shall at no time exceed 2500 parts per million.

Maintenance records must be kept by the operator to track diesel equipment engine performance.

Air Quality requirements from the original section 4 VAC 25-90-120 are proposed in 4 VAC 25-90-70 of the regulation. The section proposes to modify the location and frequency of air quality measurements to more effectively measure and evaluate the exhaust emissions from operating diesel powered equipment and to be less burdensome to operators but providing increased miner protection. Proposed air quality measurements will be collected in the immediate return for each working section during the on-shift examination when diesel equipment is in operation in by the loading point. If a problem arises, the Chief may require additional tests.

The section incorporates the Threshold Limit Values (TLV) for nitrogen dioxide and carbon monoxide that are most recent and protective while eliminating the TLV for nitrogen oxide. The requirement to measure sulfur dioxide, formaldehyde, and carbon dioxide was removed as well. Finally, emission testing and evaluation results will be required to be recorded and securely kept and available at the mine.

Section 4 VAC 25-90-80, fire protection is proposed to be moved from old section 4 VAC 25-90-270 in the regulation, reworded and reordered for clarity and understanding. In A, for example, a self contained dry chemical or liquid carbon or no less effective system is proposed to be replaced with multipurpose dry chemical type (ABC) fire suppression system or an equivalent approved system.

Fuel specifications and use and were separated into sections 4 VAC 25-90-90 and 100 respectively. Information is proposed to be moved from other parts of the regulation and information is proposed to be consolidated and simplified. In 4 VAC 25-90-90 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 require the operator to provide information on fuel sulfur content and flash point. This information is to be maintained up to date, corresponding with shipments received at the mine.

In section 4 VAC 25-90-100, fuel use, storage, handling, sections A - I are proposed to be moved from other parts of the regulation and reworded (i.e., old sections K and L). In addition, the proposed section J is reworded with detailed requirements being proposed to clarify and organize the regulation. # 1 is changed to require fuel storage greater than 1000 gallons be ventilated with intake air to the return air course or to the surface. #2 incorporates old sections K(3) and L(2), requiring an ABC type fire extinguisher and rock dust in a quantity proportionate to the quantity of fuel stored. A 48 hour and 1,000 gallon fuel storage supply limit requirement is proposed to be added to #3, while concurrently incorporating old section L(3) requirements. Proposed numbers 4 and 5 are added to address the temporary and permanent conditions under which fuel should be stored underground.

Alternatives

Please describe the specific 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.

Alternatives to this regulation were considered as part of the work committee's review. 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) and acceptance of written comments. All options have been reviewed to select the least burdensome or intrusive alternative that will achieve the essential purpose of the regulation.

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 may increase the risk of disease. Therefore, it is important to reduce miners' exposure to diesel exhaust emissions, especially in underground mines.

MSHA and NIOSH have been working with the mining community to address the potential health risks, look at ways to measure and limit diesel exhaust emissions in mines, and the approaches to achieve a safe and healthy work environment where diesel equipment is in operation. The result of this effort supports these conclusions:

- 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 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 a cornerstone of a diesel emission control program.

Findings were considered along with other scientific information stemming from development of similar regulations in neighboring states. Studies found that using catalytic converters 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.

Though ubiquitous in nature, nitrogen dioxide and carbon monoxide can be harmful in increased concentrations and more so in confined spaces, making the use of proper ventilation and emission control equipment necessary. The use of emission controls on diesel powered equipment have resulted in the reduction of these harmful nitrogen dioxide and carbon monoxide constituents in diesel exhaust gas. These findings are the result of air

monitoring and diesel equipment exhaust emission sampling conducted with the use of continuous gas monitoring equipment.

Thus, catalytic converters or filters or both are referenced in the regulation because they provide an effective method for reducing the hazards resulting from the use of diesel equipment in underground coal mines, especially when combined with clean fuel and good ventilation.

Public Comment

Please summarize all public comment received during the NOIRA comment period and provide the agency response.

No public comments were received.

Clarity of the Regulation

Please provide a statement indicating that the agency, through examination of the regulation and relevant public comments, has determined that the regulation is clearly written and easily understandable by the individuals and entities affected.

The Rules and Regulations Governing the Use of Diesel Equipment in Underground Coal Mines were reviewed by the DMME who has found through examination and relevant public comments that the regulation is clear and easily understood by those affected.

Periodic Review

Please supply a schedule setting forth when the agency will initiate a review and re-evaluation to determine if the regulation should be continued, amended, or terminated. The specific and measurable regulatory goals should be outlined with this schedule. The review shall take place no later than three years after the proposed regulation is expected to be effective.

Three years from the effective date, this regulation will be reviewed and re-evaluated under the APA and Executive Order 25(98) to determine if the regulation should be continued, amended, or terminated.

Goals of the regulation are to protect miners from diesel exhaust that may pose health hazards to workers and to encourage productive mining through the efficient uses of diesel-powered equipment. Additionally, safe and productive miners and mines accrue benefits to the public's health, safety and welfare.

Upon review of the Rules and Regulations of the Use of Diesel Equipment in Underground Coal Mines and associated regulatory goals, the agency will conclude its results or findings with a report that is to include the regulatory authority and a summary of public and agency comment.

Family Impact Statement

Please provide an analysis of the proposed regulatory action that assesses the potential impact on the institution of the family and family stability including the extent to which 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 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.