

# CSI - Ohio

## The Common Sense Initiative

### Business Impact Analysis

Agency Name: Ohio Department of Natural Resources

Regulation/Package Title: Division of Mineral Resources Management -- 2016 Diesel Rules Package

Rule Number(s): 1501:10-1-01, 1501:10-1-07, 1501:10-2-01, 1501:10-2-02, 1501:10-2-03, 1501:10-2-04, 1501:10-2-05, 1501:10-2-06, 1501:10-2-07, 1501:10-2-08, 1501:10-2-09, 1501:10-2-10, 1501:10-2-11, 1501:10-2-12, 1501:10-2-13, 1501:10-2-14, 1501:10-2-15, 1501:10-2-16, 1501:10-2-17, 1501:10-2-18, 1501:10-2-19, 1501:10-2-20, 1501:10-2-21, 1501:10-2-22, 1501:10-2-23, 1501:10-2-24, 1501:10-2-25, 1501:10-2-26 and 1501:10-2-27.

Date: January 12, 2017

**Rule Type:**

☐ New

☒ Amended

☒ 5-Year Review

☐ Rescinded

The Common Sense Initiative was established by Executive Order 2011-01K and placed within the Office of the Lieutenant Governor. Under the CSI Initiative, agencies should balance the critical objectives of all regulations with the costs of compliance by the regulated parties. Agencies should promote transparency, consistency, predictability, and flexibility in regulatory activities. Agencies should prioritize compliance over punishment, and to that end, should utilize plain language in the development of regulations.

### **Regulatory Intent**

1. Please briefly describe the draft regulation in plain language.

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*Please include the key provisions of the regulation as well as any proposed amendments.*

Pursuant to Ohio Revised Code (ORC) section 107.52, the Division of Mineral Resources Management (DMRM) is submitting 29 rules that regulate the use of diesel equipment in underground coal mines to the Common Sense Initiative. DMRM proposes to continue 25 of these rules with no changes and amend four rules as follows:

- The incorporation by reference rule needs to be changed to update the publication date of the Code of Federal Regulations.
- Two rules contain small amendments to correct errors.
- One rule needs several amendments to: use consistent language; use the phrase “written approval of the chief” instead of “a written request by the chief;” and clarify which action by the Chief is subject to appeal to the Reclamation Commission

All the rules have been reviewed by DMRM pursuant to section 106.03; thus, the JCARR filing will indicate that they have undergone their five-year-review.

The following is a list of the rules and their key provisions. (Note: the attachment to this BIA contains all the rules as they will be submitted to JCARR. Each of the four rules with proposed amendments is accompanied by a summary containing a complete list of every change proposed for the rule; there are no summaries for the 25 No Change rules.)

**Chapter 1501:10-1 of the Ohio Administrative Code (OAC).** This chapter contains general provisions for mine safety. Two rules from this chapter are part of the 2016 Diesel Rules Package.

- **1501:10-1-01 Definitions. No-Change rule.** Contains definitions of terms used in the rules of OAC Chapters 1501:10-1 and 1501:10-2, which together comprise the Mine Safety rules.
- **1501:10-1-07 Incorporation by reference.** Contains the dates of publication of the Code of Federal Regulations for those federal regulations that are incorporated by reference in the Mine Safety rules, and tells the public where these regulations can be found. The proposed amendment would update the edition of the Code of Federal Regulations.

**Chapter 1501:10-2 of the Ohio Administrative Code.** This chapter contains Ohio’s requirements for use of diesel equipment in underground coal mining operations. All 27 rules from this chapter are part of the 2016 Diesel Rules Package.

These rules implement a provision enacted by HB 443 of the 126<sup>th</sup> General Assembly, effective 4/6/2007. HB 443 enacted division (A)(8) of ORC section 1513.02, which states that the Chief of the Division of Mineral Resources Managements shall: “Establish programs and adopt rules and procedures governing terms, limitations, and conditions for the use of diesel equipment in an

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underground coal mine.” The rules were drafted, refined, and reviewed from 2009 to 2011 by a working committee comprised of underground coal mining industry and Ohio Coal Association representatives, United Mine Worker representatives, and Division staff. They became effective 11/3/2011.

- **1501:10-2-01 Applicability. No-Change rule.** Explains the scope of applicability of the rules in Chapter 1501:10-2 of the Administrative Code and what laws authorize these rules.
- **1501:10-2-02 Definitions for Chapter 1501:10-2 of the Administrative Code. No-Change rule.** Contains definitions of terms used in the rules of OAC Chapter 1501:10-2.
- **1501:10-2-03 General requirements for underground use of diesel-powered equipment. No-Change rule.** General requirements include that all underground diesel powered equipment shall be attended while in operation or when the engine is running.
- **1501:10-2-04 Diesel-powered equipment package. No-Change rule.** Requirements include that each specific model of diesel-powered equipment, as well as a maintenance plan, ventilation plan, and training plans, must be approved by the Chief before the equipment is taken underground.
- **1501:10-2-05 Exhaust emissions control and conditioning systems. No-Change rule.** Requirements include laboratory testing, approvals and the components for the exhaust emissions system, as well as the requirements for on-board engine performance and maintenance diagnostics systems.
- **1501:10-2-06 Ventilation. No-Change rule.** Requirements include minimum ventilating air quantities.
- **1501:10-2-07 Exhaust emissions monitoring and control. No-Change rule.** Requirements include the threshold limits for and measurement of exhaust emissions, testing of the emissions systems, and service and maintenance of filters and the exhaust system.

- **Fuel and fuel storage:**
  - **1501:10-2-08 Underground diesel fuel storage facilities. No-Change rule.**
  - **1501:10-2-09 Transfer of diesel fuel. No-Change rule.**
  - **1501:10-2-10 Containers for transport of diesel fuel. No-Change rule.**
  - **1501:10-2-13 Prohibition on the use of certain starting aids. No-Change rule.**
  - **1501:10-2-14 Fueling. No-Change rule.**

Requirements include diesel fuel standards, the location, construction and safety requirements for fuel storage facilities, safety measures related to welding and cutting, and diesel fuel piping systems.

- **Fire suppression:**
  - **1501:10-2-11 Fire suppression for equipment and transportation. No-Change rule.**
  - **1501:10-2-12 Fire suppression for underground diesel fuel storage facilities. No-Change rule.**

Requirements include monitoring, inspections, maintenance and record-keeping, as well as instructing miners in the use of fire suppression devices.

- **1501:10-2-16 Maintenance. No-Change rule.** Requirements include development and approval of a diesel-powered equipment maintenance plan as well as compliance with this plan.
- **1501:10-2-17 Records. No-Change rule.** Requires that a record be made of all emissions tests, preoperational exams, and maintenance and repairs of all equipment in the diesel-powered equipment package.
- **1501:10-2-18 Duties of equipment operator. No-Change rule.** Contains detailed requirements for the pre-operational and operational exams that the equipment operator must perform.
- **Maintenance and Diagnostic testing:**
  - **1501:10-2-19 Schedule of maintenance. No-Change rule.**
  - **1501:10-2-21 Equipment maintenance diagnostic testing. No-Change rule.**

Includes detailed list of the maintenance and diagnostic testing that must be performed on all diesel-powered equipment at specific intervals of engine operation.

- **1501:10-2-20 Establishing baseline exhaust emissions values for monitoring and control.** Includes a detailed procedure for establishing baseline values; allows for alternate procedures. The proposed amendment would correct a typo.
- **1501:10-2-25 Additional requirements for the operation of diesel-powered equipment. No-Change rule.** Requirements include maintenance of roadways, safe operating speeds, and standardized traffic rules. The operator shall remove from service any equipment that is in an unsafe or unhealthful condition.
- **Training:**
  - **1501:10-2-15 Fire and safety training. No-Change rule.**
  - **1501:10-2-22 General requirements for training diesel-powered equipment operators.** The proposed amendment would correct an error: it is the equipment operator who qualifies to operate the equipment, not the mine operator.
  - **1501:10-2-23 Equipment-specific training for diesel-powered equipment operators. No-Change rule.**
  - **1501:10-2-24 Diesel mechanic training. No-Change rule.**
  - **1501:10-2-26 Underground mine inspector diesel inspection training. No-Change rule.**

Requirements include approval of training plans by the Chief, issuance of certificates of qualification by mine operators to the equipment operators, and training of Ohio's underground coal mine inspector on the use of diesel mine equipment.

- **1501:10-2-27 Diesel Technical Advisory Committee.** Establishes the Committee in accordance with section 121.13 of the Revised Code and sets forth requirements for this advisory body. The proposed amendments would make several changes to correct and clarify:
  - The term "this chapter" would be used consistently throughout the rule.
  - In order to increase the flexibility of the rule, paragraph (E) would no longer specify which fund must be used for reimbursements.
  - In (K)(3), the phrase "a written request by the chief" would be removed and replaced with "written approval of the chief" because the action that the Chief takes in (K)(1) and (2) of the rule is to approve the investigation, not to make a request.
  - (M) would be revised to clarify that only certain action taken by the Chief under this rule is subject to appeal: only the Chief's action under paragraph (L) to approve or reject a recommendation or to not make a decision on a recommendation within the time requirements.

**2. Please list the Ohio statute authorizing the Agency to adopt this regulation.**

<u>Ohio Administrative Code</u>	<u>Statutory Authority</u>
OAC 1501:10-1-01	1561.03
OAC 1501:10-1-07	1561.03 and 1561.05.
OAC Chapter 1501:10-2 (27 rules)	1513.02

**3. Does the regulation implement a federal requirement? Is the proposed regulation being adopted or amended to enable the state to obtain or maintain approval to administer and enforce a federal law or to participate in a federal program?  
*If yes, please briefly explain the source and substance of the federal requirement.***

No, Ohio's Mine Safety Program is separate from the federal Mine Safety and Health Administration (MSHA) and the federal government has no oversight authority over Ohio's program.

The Federal and Ohio Mine Safety programs do have elements in common, however. For example, in 2009-2011 when the Rules Committee developed the rules in OAC Chapter 1501:10-2, they decided to reference the Code of Federal Regulations in several instances, including the definition of authorized representative of miners, the MSHA approval plate ventilation rate for diesel engines, and MSHA refresher training and fire drill requirements. All diesel engines used in underground mines must be certified or approved by MSHA and maintained in accordance with MSHA certification or approval and the Chief's approval (see 1501:10-2-04(B)). Implementing state standards that are the same or similar to federal standards, when appropriate, can ease the burden of compliance for industry.

**4. If the regulation includes provisions not specifically required by the federal government, please explain the rationale for exceeding the federal requirement.**

Not applicable.

**5. What is the public purpose for this regulation (i.e., why does the Agency feel that there needs to be any regulation in this area at all)?**

To protect underground coal mine workers; to maintain safe working conditions in mines; to monitor for and correct mine safety problems and prevent recurrence of those problems.

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**6. How will the Agency measure the success of this regulation in terms of outputs and/or outcomes?**

DMRM has the responsibility to protect mine workers from the occupational hazards of mining.

DMRM will measure the success of the diesel rules by the degree of safety they provide. The Mine Safety Program investigates each serious mine accident or fatality and prepares a written report of the accident, which includes a recommendation concerning appropriate remedial measures to prevent the reoccurrence of such accident or fatality. The DMRM uses the information from these investigations to improve mine safety training and inspections so as to prevent such accidents from happening again.

**Development of the Regulation**

**7. Please list the stakeholders included by the Agency in the development or initial review of the draft regulation.**

*If applicable, please include the date and medium by which the stakeholders were initially contacted.*

Stakeholders in the development and review of these rules: the Ohio Coal Association and the underground coal operators that are members of this association; the United Mines Workers; and the Ohio Environmental Council. As explained above, these rules were initially drafted 2009-2011 by a committee of industry, union and Division staff. The five-year review date for these rules is 10/24/2016.

On June 24, 2016, DMRM Chief Lanny Erdos provided an advance copy of these rules and their proposed changes, by e-mail, to Christian Palich of the Ohio Coal Association, requesting review by his organization.

The Ohio Coal Association had no comments.

On August 15, 2016, DMRM provided these rules, by e-mail, to Christian Palich, Babe Erdos of the United Mine Workers, and Trent A. Dougherty of the Ohio Environmental Council, requesting their comments by September 15.

DMRM received no comments on the rules.

**8. What input was provided by the stakeholders, and how did that input affect the draft regulation being proposed by the Agency?**

There have been no comments from stakeholders.



**9. What scientific data was used to develop the rule or the measurable outcomes of the rule? How does this data support the regulation being proposed?**

These rules were developed due to a direct mandate in Ohio's coal mining law. The changes proposed in this five-year review are small corrections or clarifications that will not change the requirements of the diesel rules.

Significant advances in diesel engines and in underground mine ventilation both influenced the law change that resulted in these rules. With the understanding that diesel equipment could be safely used in underground mines, the multi-stakeholder Diesel Rules Committee developed these rules by carefully balancing the cost of regulation with the fundamental need for miner safety.

At the time Ohio's diesel rules were being developed (2009-2011), Pennsylvania and West Virginia already allowed the use of diesel equipment in underground coal mines. The Diesel Rules Committee agreed that since the coalfields of Ohio lie in close proximity to those of Pennsylvania and West Virginia, it would be in the best interests of miners as well as the northern Appalachian coal region community in general, for Ohio's diesel laws to mirror, or come as close as possible to mirroring, those in these two neighboring states. Moreover, coal operators with permits in multiple states in this region would find it easier to comply with regulations that are similar across the states.

**10. What alternative regulations (or specific provisions within the regulation) did the Agency consider, and why did it determine that these alternatives were not appropriate? If none, why didn't the Agency consider regulatory alternatives?**

No alternative regulations were considered; ORC Chapter 1513. does not allow for alternative means of compliance with these rules.

**11. Did the Agency specifically consider a performance-based regulation? Please explain.**  
*Performance-based regulations define the required outcome, but don't dictate the process the regulated stakeholders must use to achieve compliance.*

No, because ORC Chapter 1513. dictates the parameters of the regulations.

**12. What measures did the Agency take to ensure that this regulation does not duplicate an existing Ohio regulation?**

The ODNR Division of Mineral Resources Management is the sole agency with authority under the ORC to regulate underground coal mining safety. The other laws and rules under the authority of the ODNR DMRM were reviewed to avoid conflict.

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**13. Please describe the Agency’s plan for implementation of the regulation, including any measures to ensure that the regulation is applied consistently and predictably for the regulated community.**

The changes proposed to rules in OAC Chapters 1501:10-1 and 1501:10-2 are corrections, updates and clarifications that will not change the way that the diesel equipment in underground coal mines is regulated. No implementation plan is needed.

**Adverse Impact to Business**

**14. Provide a summary of the estimated cost of compliance with the rule. Specifically, please do the following:**

- a. Identify the scope of the impacted business community;**
- b. Identify the nature of the adverse impact (e.g., license fees, fines, employer time for compliance); and**
- c. Quantify the expected adverse impact from the regulation.**

*The adverse impact can be quantified in terms of dollars, hours to comply, or other factors; and may be estimated for the entire regulated population or for a “representative business.” Please include the source for your information/estimated impact.*

Answer to question a: The affected business community is Ohio’s underground coal mining operators.

Answer to questions b and c:

Chapter 1501:14-1. The two rules in the Diesel Rules Package from this chapter do not have an adverse impact on the regulated business community.

Chapter 1501:14-2. The rules in this chapter contain requirements related to:

- Approval of diesel equipment, maintenance plans, ventilation plans, and training plans.
- Approval of exhaust emissions systems and maintenance diagnostics systems.
- Regulation of exhaust emissions, fuel, fire safety, record maintenance, and training.
- Testing and maintenance of equipment.
- Membership and function of the Diesel Technical Advisory Committee.

These rules impose requirements on mine operators who wish to use diesel equipment in underground coal mines in addition to the costs that all mining operations must incur to maintain a safe working environment. The adverse impact of the rules on the industry has not been significant, however, because the rules simply haven’t seen a lot of use.

At the time the rules were promulgated in 2011, DMRM expected numerous underground coal companies to apply these rules to their operations. Instead, only one Ohio coal company has made some limited use of these rules. This company already had diesel equipment in its Pennsylvania underground coal mines and was therefore able to easily extend this equipment usage to Ohio, although it uses only a few pieces of diesel equipment here in this state.

The limited application of the diesel rules is undoubtedly due to the recent significant downturn in coal production, which has limited coal companies' ability to purchase new equipment or otherwise change their methods of production.

**15. Why did the Agency determine that the regulatory intent justifies the adverse impact to the regulated business community?**

ORC section 1513.02(A)(8) establishes the parameters for these rules. This provision allows the use of diesel equipment in underground coal mines under certain terms, limitations and conditions to provide safeguards for the health and wellbeing of mine employees.

**Regulatory Flexibility**

**16. Does the regulation provide any exemptions or alternative means of compliance for small businesses? Please explain.**

Neither ORC section 1513.02(A)(8) nor the diesel rules contain a small business exemption. Regulatory flexibility does not apply in this case because there is no reason to allow a small business to be less protective of its employees when using underground diesel equipment.

**17. How will the agency apply Ohio Revised Code section 119.14 (waiver of fines and penalties for paperwork violations and first-time offenders) into implementation of the regulation?**

DMRM does not normally assess penalties for paperwork violations unless, for example, a pattern of violations develops, or the issue goes into non-compliance, or an operator knowingly or willingly fails to submit required reports. Further, section 119.14 is not applicable to the regulation of mine safety because a violation of ORC Chapter 1513. or OAC Division 1501:10:

- Has the potential to cause serious harm to the public interest that DMRM is charged to protect.
- Presents a direct danger to the public health or safety.

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**18. What resources are available to assist small businesses with compliance of the regulation?**

DMRM's Mine Safety staff are available to help anyone who needs guidance or assistance in complying with these rules.

## **ATTACHMENT TO CSI BUSINESS IMPACT ANALYSIS FOR DIESEL RULES**

### **Mine Safety: 2016 Five-Year Review Rules – 29 rules total**

**1/2017**

#### **Rules for use of Diesel-Powered Equipment in Underground Coal Mines**

The rules with proposed amendments are included first, followed by the “No Change” rules (rules that are proposed to be continued as they are currently effective).

#### **Rules with proposed amendments – 4 rules**

- 1501:10-1-07 Incorporation by reference. Update needed.
- 1501:10-2-20 Establishing baseline exhaust emissions values for monitoring and control.  
Typo corrected.
- 1501:10-2-22 General requirements for training diesel-powered equipment operators.  
Error corrected.
- 1501:10-2-27 Diesel Technical Advisory Committee. Several changes to correct and clarify.

#### **No-Change Rules – 25 rules**

- 1501:10-1-01 Definitions
- 1501:10-2-01 Applicability
- 1501:10-2-02 Definitions for Chapter 1501:10-2 of the Administrative Code
- 1501:10-2-03 General requirements for underground use of diesel-powered equipment
- 1501:10-2-04 Diesel-powered equipment package
- 1501:10-2-05 Exhaust emissions control and conditioning systems
- 1501:10-2-06 Ventilation
- 1501:10-2-07 Exhaust emissions monitoring and control
- 1501:10-2-08 Underground diesel fuel storage facilities
- 1501:10-2-09 Transfer of diesel fuel
- 1501:10-2-10 Containers for transport of diesel fuel
- 1501:10-2-11 Fire suppression for equipment and transportation
- 1501:10-2-12 Fire suppression for underground diesel fuel storage facilities
- 1501:10-2-13 Prohibition on the use of certain starting aids
- 1501:10-2-14 Fueling
- 1501:10-2-15 Fire and safety training
- 1501:10-2-16 Maintenance
- 1501:10-2-17 Records
- 1501:10-2-18 Duties of equipment operator
- 1501:10-2-19 Schedule of maintenance
- 1501:10-2-21 Equipment maintenance diagnostic testing
- 1501:10-2-23 Equipment-specific training for diesel-powered equipment operators
- 1501:10-2-24 Diesel mechanic training
- 1501:10-2-25 Additional requirements for the operation of diesel-powered equipment
- 1501:10-2-26 Underground mine inspector diesel inspection training

Draft Rule 1501:10-1-07, dated 3/29/2016

This is a summary of the changes made to this rule.

(A). Update of the edition of the Code of Federal Regulations that is incorporated by reference.

*Before this rule is filed with JCARR, the date in the rule will be updated with the most recent federal publication date.*

**\*\*\*DRAFT - NOT FOR FILING\*\*\***

**Dated 3/29/2016**

**1501:10-1-07      Incorporation by reference.**

(A) The federal regulation references included in the rules of Chapters 1501:10-1 and 1501:10-2 of the Administrative Code can generally be found in public libraries or electronically at the website <http://www.gpo.gov/fdsys/>. The publishing date for Title 30 is July 1, ~~2011~~2015. These regulations are:

- (1) 30 C.F.R. Part 7;
- (2) 30 C.F.R. Part 40;
- (3) 30 C.F.R. Part 48;
- (4) 30 C.F.R. Part 50;
- (5) 30 C.F.R. Part 75.

Draft Rule 1501:10-2-20, dated 3/29/2016

This is a summary of the changes made to this rule.

(C)(7). Typo corrected.



# \*\*\*DRAFT - NOT FOR FILING\*\*\*

Dated 3/29/2016

## **1501:10-2-20      Establishing baseline exhaust emissions values for monitoring and control.**

- (A) Exhaust emissions for diesel-powered equipment shall be monitored and controlled using the control and conditioning systems of rule 1501:10-2-05 of the Administrative Code, the threshold limits and other requirements of rule 1501:10-2-07 of the Administrative Code, the baseline exhaust emissions values established in this rule, and the diagnostic testing of rule 1501:10-2-21 of the Administrative Code.
- (B) Establishing baseline exhaust emissions values. For purposes of diagnostic testing under rule 1501:10-2-21 of the Administrative Code, baseline exhaust emissions values shall be established in accordance with this rule for each piece of diesel-powered equipment to be used in a specific underground coal mine.
  - (1) The chief shall approve baseline carbon monoxide (CO) values that are representative of the MSHA lug curve for that specific engine model. If the baseline CO values are greater than the MSHA lug curve values, the chief shall investigate and approve, disapprove, or provide an alternate operating procedure for meeting the requirements of this rule under the condition that CO baseline exhaust emissions remain representative of MSHA's approval data.
  - (2) The chief shall establish the loaded condition for the baseline exhaust emissions testing under paragraphs (C)(12) to (C)(13) of this rule by determining carbon dioxide (CO<sub>2</sub>) values that are representative of the MSHA lug curve readings for that engine model and horsepower.
  - (3) When any diesel-powered machine first enters service at a mine, a mechanic qualified in accordance with rule 1501:10-2-24 of the Administrative Code shall establish the baseline exhaust emissions values, other than the CO and CO<sub>2</sub> emissions values approved or established by the chief under paragraphs (B)(1) and (B)(2) of this rule, by following the procedure of paragraph (C) of this rule or an approved alternative procedure of paragraph (D) of this rule.
- (C) When establishing baseline exhaust emissions values, equipment may be located either on the surface or underground. Unless the chief approves an alternative procedure for establishing baseline exhaust emissions values pursuant to paragraph (D) of this rule, a mechanic qualified in accordance with rule 1501:10-2-24 of the Administrative Code shall establish baseline exhaust emissions values in accordance with the following:
  - (1) Verify that the seal on the engine fuel injector pump is in place and that the proper fuel pump is on the equipment;
  - (2) Install a new, clean intake air cleaner, then measure and record the intake restriction pressure, and ensure the pressure meets the manufacturer's specifications;
  - (3) Check the level of engine oil and add oil, if necessary;
  - (4) Change the engine lubrication oil (if not fresh);
  - (5) Check the level of the transmission fluid and add fluid if necessary;
  - (6) Measure and record the exhaust gas backpressure and, if exhaust gas backpressure is above that specified by the manufacturer, take steps to bring the exhaust gas backpressure back within the manufacturer's recommended limit prior to again beginning the procedure to establish the baseline exhaust emissions values pursuant to paragraph (C) of this rule;
  - (7) Test the brakes and ensure the brakes are in good working order ~~as~~ specified by the manufacturer;
  - (8) If the baseline exhaust emissions values are being established on equipment that is underground, place the equipment into an intake entry;
  - (9) Set the brakes and chock the wheels;

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- (10) Install an exhaust gas analyzer in proper working condition into the untreated exhaust gas port;
  - (11) Start the engine and allow it to warm up to operating temperature;
  - (12) Put the engine into a loaded condition;
  - (13) Start the exhaust gas analyzer and allow the engine to operate in the loaded condition for a sufficient length of time, but not less than a ninety-second duration to insure proper CO readings. The qualified mechanic shall record both CO and CO<sub>2</sub> readings; and
  - (14) Comply with record keeping requirements of rule 1501:10-2-17 of the Administrative Code.
- (D) The chief may approve an alternative to the procedure to establish the baseline exhaust emissions values of paragraph (C) of this rule.
- (E) The results of the procedures to establish the baseline exhaust emissions values under this rule shall be submitted to and approved by the chief prior to being implemented for each engine and equipment type.

Draft Rule 1501:10-2-22, dated 3/29/2016

This is a summary of the changes made to this rule.

(D). Error corrected: it is the equipment operator who qualifies to operate the equipment, not the mine operator.

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Dated 3/29/2016

## 1501:10-2-22 General requirements for training diesel-powered equipment operators.

- (A) To use diesel-powered equipment in an underground coal mine, the mine operator shall submit to the chief for approval a training plan for training equipment operators in the use of diesel-powered equipment and shall not allow any person who is not qualified under paragraph (D) or (G) of this rule to operate diesel-powered equipment in an underground coal mine.
- (B) All training course instructors and all training plans required by this rule and rules 1501:10-2-23 and 1501:10-2-24 of the Administrative Code shall be approved by the chief. Equipment operator training and qualification shall meet the requirements of this rule.
- (C) Training shall be conducted in the basics of the operation of diesel engines, federal and state regulations governing their use, company rules for safe operation, the specific features of each piece of equipment, and the ability to recognize problems. The mine operator shall provide this training to each equipment operator and, if applicable, to the mine's health and safety committee. This training shall be designed to bring every equipment operator to a level of good understanding of diesel-powered equipment operation. An equipment operator may attain qualification by attending a course of a minimum of eight hours which shall include formal classroom training on diesel fundamentals and equipment-specific hands-on training pursuant to rule 1501:10-2-23 of the Administrative Code.
- (D) When an equipment operator successfully completes the classroom and hands-on training required under paragraph (C) of this rule, the mine operator shall issue to the equipment operator a certificate of qualification that qualifies the ~~mine~~equipment operator to operate a specific type of diesel-powered equipment. An equipment operator may be qualified to operate more than one type of equipment by successfully completing additional equipment-specific training that covers operational attributes specific to each additional type of diesel-powered equipment.
- (E) Two hours of refresher training shall be required annually for all diesel-powered equipment operators unless the chief approves an alternative training schedule. This training shall be separate from the training required by MSHA regulations 30 C.F.R. Part 48. The mine operator shall furnish all training and refresher training required under this rule. The employees shall suffer no loss of pay for attending training and refresher training.
- (F) The training and refresher training required under paragraphs (C) and (E) of this rule shall include instruction in the following classroom subjects:
  - (1) Engine fundamentals, which shall include an introduction to the function of a diesel engine and recognition of all major components and their functions;
  - (2) Diesel regulations, which shall include an introduction to federal and state regulations governing the use of diesel-powered equipment;
  - (3) Diesel emissions, which shall include an introduction to diesel emissions and their adverse health effects;
  - (4) Factors that affect diesel emissions, which shall include a detailed presentation of engine faults and diesel fuel quality, and their effects on emissions, as well as instruction in the preventive actions that can be taken to minimize emissions levels;
  - (5) Emissions control devices, which shall include a detailed presentation of the different emissions control devices employed to reduce emissions, and details about actions the equipment operator must take to keep the devices in working order;

**\*\*\*DRAFT - NOT FOR FILING\*\*\***

- (6) Diagnostic techniques, which shall include a presentation of techniques that can be employed by the equipment operator to assure the equipment is in safe operating condition, and instruction in how to recognize and diagnose certain engine faults that may cause increases in emissions;
  - (7) The preoperational inspection, which shall include a presentation of the purpose, benefits, and requirements of the preoperational inspection;
  - (8) Ventilation, which shall include an introduction to special ventilation requirements for areas of the mine in which diesel-powered equipment will operate;
  - (9) Fire suppression systems, which shall include an introduction to the use and function of fire suppression systems, and when and how to manually activate a fire suppression system;
  - (10) Operating rules, which shall include a detailed presentation of the driving rules, safe driving speeds, traffic control devices, and equipment limitations;
  - (11) Emergency procedures, which shall include discussion of emergency situations such as fire, diesel fuel spills, component failure, and loss of ventilation air. This instruction shall also include emergency escape procedures and discussion of the potential use of the diesel-powered vehicle as an emergency escape vehicle in case of a mine emergency situation; and
  - (12) Record keeping and reporting procedures, which shall include a presentation on required record keeping and reporting procedures for problems or unsafe conditions, high emissions levels, and preoperational inspections made by the equipment operator.
- (G) Annual certificate of qualification. The mine operator shall issue to the equipment operator a new certificate of qualification each year after the equipment operator has successfully completed the annual refresher training pursuant to paragraph (E) of this rule. The mine operator shall keep at the mine site a copy of the most recent certificate of qualification issued to the equipment operator and make it available for inspection by the chief or his or her representative.
- (H) For dates of federal rules referenced in this rule, see rule 1501:10-1-07 of the Administrative Code.

Draft Rule 1501:10-2-27, dated 1/10/2017

This is a summary of the changes made to this rule.

(D)(1) and (L)(1). The terms “Chapter 1501:10-2 of the Administrative Code” and “rules 1501:10-2-01 to 1501:10-2-27 of the Administrative Code” changed to “this chapter” so the entire rule uses this reference consistently. “This chapter” also conforms to LSC rule-drafting protocol.

(E). The source of the reimbursement monies is proposed to be removed because there are various sources of funding for the Mine Safety Program. Not including a specific fund will increase the flexibility of the rule.

(K)(3). Revised to remove “a written request by the chief” and replace with “written approval of the chief” because the action that the Chief takes in (K)(1) and (2) is to approve the investigation, not to make a request.

(M). Revised to clarify that only certain action taken by the Chief under this rule is subject to appeal: only the Chief’s action under paragraph (L) to approve or reject a recommendation or to not make a decision on a recommendation within the time requirements.

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**Dated 1/10/2017**

## **1501:10-2-27 Diesel technical advisory committee.**

- (A) The diesel technical advisory committee, as defined in rule 1501:10-2-02 of the Administrative Code, is hereby established and approved in accordance with section 121.13 of the Revised Code. Any alternate operating procedure, alternative technology, major operational change, or new technology recommended by the technical advisory committee or approved by the chief shall not reduce or compromise the level of health and safety protection afforded by this chapter.
- (B) Membership. The diesel technical advisory committee shall consist of two members appointed by the chief. The chief shall appoint one of the two members to be chairperson of the technical advisory committee. The chief shall appoint:
- (1) One member from a list of qualified candidates nominated by the Ohio coal association; and
  - (2) One member who works at an Ohio underground coal mine utilizing diesel equipment and who is elected by two or more miners as the miners' safety representative at that mine, except that, for the initial appointment of this member, the chief shall appoint a person who works at an Ohio underground coal mine and who is familiar with the use of diesel equipment at or around underground coal mines.
- (C) Terms. Each member of the diesel technical advisory committee shall be appointed for a term of three years. The chief may reappoint a member to serve an unlimited number of successive three-year terms.
- (D) Functions. The diesel technical advisory committee shall provide the chief with technical advice and recommendations concerning the technical operating aspects of underground diesel-powered equipment. In fulfilling its role, the technical advisory committee shall, at the written request of the chief, be available to:
- (1) Review and make recommendations to the chief regarding implementation of the use of diesel equipment in underground coal mines pursuant to ~~Chapter 1501:10-2 of the Administrative Code~~[this chapter](#);
  - (2) Advise the chief regarding operating parameters for the use of diesel-powered equipment in shaft and slope construction operations at underground coal mines;
  - (3) Evaluate an alternative operating procedure, alternative technology, new technology or major operational change for diesel-powered equipment used in underground coal mines;
  - (4) Provide technical assistance to operators regarding diesel equipment technologies;
  - (5) Conduct investigations along with the chief's representative, and technical investigations relating to implementation of the use of diesel equipment in underground coal mines; and
  - (6) Provide training regarding the implementation of diesel equipment emission controls and emission testing.
- (E) Expenses. Members of the diesel technical advisory committee shall be unpaid volunteers representing the interests, health, and safety of underground coal miners in the state of Ohio. A member shall receive no compensation but shall be reimbursed ~~from the mine safety fund~~ for the actual and necessary expenses incurred in the performance of the member's function as a member of the technical advisory committee.
- (F) Meetings. The diesel technical advisory committee, after approval by the chief, shall meet at least quarterly, at times as scheduled by the chairperson.



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- (G) Quorum. Actions of the diesel technical advisory committee require that both members be present.
- (H) Unanimous recommendation. If a recommendation of the diesel technical advisory committee receives a unanimous vote from the committee members, the committee shall submit this recommendation to the chief in writing, including details regarding the advantages and disadvantages of taking the recommended action.
- (I) Divided recommendation. If a recommendation does not receive a unanimous vote from the committee members, each committee member shall submit a detailed written report to the chief explaining the reasons for his or her position for or against the recommendation.
- (J) Chief to provide support to the diesel technical advisory committee.
  - (1) The chief shall make clerical support and assistance available to enable the technical advisory committee to carry out its duties.
  - (2) The chief shall make available to the technical advisory committee equipment for testing diesel engine exhaust emissions and for measuring diesel engine surface temperatures and exhaust gas temperatures.
- (K) Technical investigation of an alternate operating procedure, alternative technology, major operational change, or new technology.
  - (1) Upon request of a coal miner, coal mine operator or diesel-related technology manufacturer, or on its own motion, the diesel technical advisory committee shall conduct a technical investigation of the use of an alternate operating procedure, alternative technology, major operational change, or new technology, provided that the chief approves the technical investigation in writing. A technical advisory committee recommendation resulting from an investigation under this paragraph and approved by the chief may be applicable to all underground coal mines in Ohio upon written notice by the chief to affected persons.
  - (2) Upon notice of a request of a coal mine operator, and with the written approval of the chief, the technical advisory committee shall consider a site-specific request for use of an alternate operating procedure, alternative technology, major operational change, or new technology. The technical advisory committee's recommendation on a request submitted under this paragraph shall be on a site-specific basis. The technical advisory committee shall conduct an investigation which shall include consultation with the mine operator and the authorized representatives of the miners at the mine. If there is no authorized representative of the miners for the particular mine, the technical advisory committee shall consult with a reasonable number of miners at the mine.
  - (3) Within one hundred eighty days of receipt of ~~a-written request by~~approval of the chief under paragraph (K)(1) or (K)(2) of this rule, the technical advisory committee shall complete its investigation and make a recommendation to the chief. The time period under this paragraph may be extended with the consent of the person who submitted the request. The technical advisory committee members shall only recommend approval of the use of an alternate operating procedure, alternative technology, major operational change, or new technology if, at the conclusion of the investigation, the committee members have made a determination that use of the alternate operating procedure, alternative technology, major operational change, or new technology will not reduce or compromise the level of health and safety protection afforded by this chapter.
  - (4) The diesel technical advisory committee shall submit to the chief one of three possible recommendations:

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- (a) A unanimous recommendation to approve the request for use of an alternate operating procedure, alternative technology, major operational change, or new technology. A recommendation under this paragraph shall be made in writing and include the results of the investigation, the advantages and disadvantages of taking the recommended action, and specific conditions of use for the alternate operating procedure, alternative technology, major operational change, or new technology;
- (b) A unanimous recommendation to reject the request for use of an alternate operating procedure, alternative technology, major operational change, or new technology. A recommendation under this paragraph shall be made in writing and explain in detail the basis for the rejection; or
- (c) A divided recommendation on the use of an alternate operating procedure, alternative technology, major operational change, or new technology. If there is a divided recommendation, each member of the committee shall submit a detailed report to the chief, within fourteen days of the technical advisory committee's vote, explaining the reasons for the member's position for or against the recommendation.

(5) All recommendations shall identify all persons with whom the technical advisory committee consulted during the technical investigation.

(L) Action by the chief.

(1) The chief may request the technical advisory committee to conduct a technical investigation in accordance with paragraph (K) of this rule whenever a mine operator proposes any use of underground diesel equipment in a manner that is not specifically permitted by ~~rules 1501:10-2-01 to 1501:10-2-27 of the Administrative Code~~[this chapter](#).

(2) Decision by the chief following a unanimous recommendation.

- (a) If the technical advisory committee submits a unanimous recommendation to the chief, the chief shall have thirty days to make a decision either approving or rejecting the technical advisory committee's recommendation. With the consent of the person who submitted the request, this time period may be extended. If the chief does not make a decision within the time requirements or any extension of the time requirements of this paragraph, the technical advisory committee's recommendation shall be deemed rejected.
- (b) If the chief approves the recommendation of the technical advisory committee with modification, the chief shall notify the technical advisory committee, in writing, of the modification and the reasons for the modification.

(3) Decision by the chief following a divided recommendation.

- (a) If the technical advisory committee submits a divided recommendation to the chief, the chief may, within thirty days, set a date for a meeting with the members of the technical advisory committee to discuss the reasons for the divided recommendation and to determine whether additional information and further discussion might result in a unanimous recommendation by the technical advisory committee.
- (b) The chief shall have sixty days from the date of the meeting with the technical advisory committee, or, if no meeting is held, sixty days from receiving the recommendation, to make a decision either approving or rejecting the technical advisory committee's recommendation. With the consent of the

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person who submitted the request, this time period may be extended. If the chief does not make a decision within the time requirements or any extension of the time requirements of this paragraph, the technical advisory committee's recommendation shall be deemed rejected.

(c) If the chief approves a recommendation of the technical advisory committee with modification, the chief shall notify the technical advisory committee, in writing, of the modification and the reasons for the modification.

(4) The chief may approve the use of an alternate operating procedure, alternative technology, major operational change, or new technology in accordance with paragraph (K) of this rule if approval does not reduce or compromise the level of health and safety protection afforded by this chapter.

(M) Action taken by the chief under [paragraph \(L\) of this rule to approve or reject a recommendation, or to not make a decision on a recommendation within the time requirements](#), is subject to appeal under section 1513.13 of the Revised Code.

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1501:10-1-01            **Definitions.**

As used in Chapters 1501:10-1 and 1501:10-2 of the Administrative Code:

- (A) "Chief" means the chief of the division of mineral resources management of the Ohio department of natural resources.
- (B) "MSHA" means the mine safety and health administration in the United States department of labor.

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Date

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1501:10-2-01      **Applicability.**

The rules in this chapter govern the use of diesel equipment in underground coal mines as authorized by division (A)(8) of section 1513.02 and section 1567.35 of the Revised Code.

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1501:10-2-02

**Definitions for Chapter 1501:10-2 of the Administrative Code.**

As used in this chapter:

- (A) "Alternate operating procedure" means any procedure relating to the operation or usage of underground diesel equipment not specifically authorized in this chapter that the chief determines will not cause an unsafe condition.
- (B) "Alternative technology" means any technology relating to the operation or usage of underground diesel equipment not specifically authorized in this chapter that the chief determines will not cause an unsafe condition.
- (C) "Authorized representative of miners" means a member of a mine health and safety committee elected by miners at a mine, an individual employed by an employee organization representing miners at a mine, or an individual authorized as the representative of miners of a mine in accordance with MSHA regulations 30 C.F.R. Part 40.
- (D) "Attended" means a diesel equipment operator is within sight or sound of the diesel-powered equipment while it is in operation.
- (E) "Diesel fuel tank" means a closed metal vessel specifically designed for the storage or transport of diesel fuel.
- (F) "Diesel fuel transportation unit" means a self-propelled or portable wheeled vehicle used to transport a diesel fuel tank.
- (G) "Diesel engine" means any compression ignition internal combustion engine using the basic diesel cycle where combustion results from the spraying of fuel into air heated by compression.
- (H) "Diesel-powered equipment package" means a diesel engine with an intake system, exhaust system, and a safety shutdown system installed that meets the specific MSHA permissibility requirements for diesel-powered equipment packages intended for use in underground coal mines.
- (I) "Diesel technical advisory committee" and "technical advisory committee" mean the two-member group appointed by the chief pursuant to rule 1501:10-2-27 of the Administrative Code to provide the chief with technical advice and recommendations concerning the technical operating aspects of underground diesel-powered equipment, including, but not limited to, responses to requests for a

change or variance from any technical requirement in this chapter, or the use of an alternate operating procedure, alternative technology, major operational change, or new technology.

- (J) "Exhaust emission" means any substance emitted to the atmosphere from the exhaust port of the combustion chamber of a diesel engine including exhaust gas and particulates.
- (K) "Exhaust emissions control and conditioning system" means a device or combination of devices that will collect and treat diesel exhaust emissions at the exhaust port of the engine, and will reduce the volume of, or eliminate emissions of, diesel particulate matter, carbon monoxide and oxides of nitrogen in accordance with the requirements and standards of 30 C.F.R. Part 7.
- (L) "Fuel injection system" means the fuel delivery system to the motor.
- (M) "Major operational change in underground diesel-powered equipment usage" and "major operational change" mean a use of underground diesel-powered equipment that the chief has determined, upon review by and recommendation from the technical advisory committee, deviates significantly from the rules and procedures established in this chapter.
- (N) "Mine operator" and "operator" shall mean operator as defined in section 1513.01 of the Revised Code.
- (O) "New underground diesel technology" and "new technology" mean an advance in diesel technology that is developed for safe application in underground coal mines after the effective date of this rule.
- (P) "Long-term underground diesel fuel storage facility" means a facility that is designed and constructed to remain at one location for the storage or dispensing of diesel fuel and which does not move as mining progresses and which has been installed in full compliance with all applicable safety guidelines and procedures for an underground fuel storage facility as provided in rule 1501:10-2-08 of the Administrative Code.
- (Q) "Safety can" means a metal container intended for the storage, transport or dispensing of diesel fuel that has a nominal capacity of five gallons and is listed or approved by a nationally recognized independent testing laboratory.
- (R) "Short-term underground diesel fuel storage facility" means an area of a mine provided for the short-term storage of diesel fuel in a fuel transportation unit which moves as mining progresses, and which has been installed in full compliance with

all applicable safety guidelines and procedures for an underground diesel fuel storage facility as provided in rule 1501:10-2-08 of the Administrative Code.

- (S) "Technical advisory committee investigation" and "technical investigation" mean an investigation and report by the diesel technical advisory committee on the impacts and safety of an alternate operating procedure, alternative technology, major operational change, or new technology related to the use of underground diesel equipment.
- (T) "Underground diesel fuel storage facility" means any facility designed and constructed to provide for the storage of any mobile diesel fuel transportation unit or for the dispensing of diesel fuel and includes short-term underground diesel fuel storage facilities and long-term underground diesel fuel storage facilities.
- (U) For dates of federal rules referenced in this rule, see rule 1501:10-1-07 of the Administrative Code.

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1501:10-2-03

**General requirements for underground use of diesel-powered equipment.**

- (A) Underground use of inby and outby diesel-powered equipment, including mobile equipment, stationary equipment and equipment of all horsepower ratings, shall be approved, operated and maintained only as provided in this chapter, except for emergency fire-fighting equipment to be used specifically for that purpose.
- (B) All diesel-powered equipment shall be attended in underground mines while in operation or when the engine is running.
- (C) Inby and outby diesel-powered equipment may be used in underground mines if the inby or outby diesel-powered equipment uses an engine approved or certified by MSHA, as applicable, for inby or outby use, that when tested at the maximum fuel-to-air ratio, does not require an MSHA 30 C.F.R. Part 7 approval plate ventilation rate exceeding seventy-five cubic feet per minute (cfm) per rated horsepower. Should MSHA promulgate new regulations that change the 30 C.F.R. Part 7 approval plate ventilation rate, the cfm requirement per rated horsepower will be either increased or decreased on a direct ratio basis as approved by the chief.
- (D) For dates of federal rules referenced in this rule, see rule 1501:10-1-07 of the Administrative Code.

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1501:10-2-04

**Diesel-powered equipment package.**

- (A) Approval of diesel-powered equipment package. Each specific model of diesel-powered equipment shall be approved by the chief before it is taken underground. The diesel-powered equipment shall be approved by the chief as a complete diesel-powered equipment package, which shall be subject to all of the requirements, standards and procedures set forth in this chapter.
- (B) Approval of diesel-powered equipment maintenance plan, diesel ventilation plan, and training plans for equipment operators and mechanics. Diesel engines shall be certified or approved, as applicable, by MSHA, and maintained in accordance with MSHA certification or approval and the chief's approval. Before diesel-powered equipment is taken underground, a maintenance plan for diesel-powered equipment pursuant to rule 1501:10-2-16 of the Administrative Code, a diesel ventilation plan that meets the requirements of rules 1501:10-2-06 and 1501:10-2-07 of the Administrative Code, and training plans for training equipment operators and mechanics pursuant to rules 1501:10-2-22 to 1501:10-2-24 of the Administrative Code shall be approved by the chief.
- (C) All approved diesel-powered equipment that is included in a mine's complete diesel-powered package shall be listed on an inventory sheet submitted to the chief with a copy maintained at the mine. The following information shall be provided on the inventory list:
  - (1) The name, address, state permit number, and MSHA identification number of the mine;
  - (2) The name and phone number of the contact person responsible for maintenance and testing of the diesel equipment;
  - (3) The following specific information for each engine:
    - (a) Manufacturer, serial number and model of the equipment using the power-package;
    - (b) Manufacturer, model number and serial number of the engine;
    - (c) MSHA 30 C.F.R. Part 7 Subpart E approval number;
    - (d) Rated horsepower and revolutions per minute (rpm);



- (e) Diesel particulate matter in grams per hour rating (g/hr) and milligrams per cubic meter of air (mg/m<sup>3</sup>); and
  - (f) Ventilation rate; and
- (4) The following specific information for each filter system:
  - (a) Manufacturer and model of the filter system;
  - (b) MSHA efficiency rating of the filter system or an accepted third-party rating;
  - (c) System type and composition (for example, passively regenerated cordirite); and
  - (d) The manufacturer/model of regeneration system, if applicable.
- (D) For dates of federal rules referenced in this rule, see rule 1501:10-1-07 of the Administrative Code.

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1501:10-2-05

**Exhaust emissions control and conditioning systems.**

- (A) Underground diesel-powered equipment shall include an exhaust emissions control and conditioning system that has been laboratory tested with the diesel engine, except as provided in paragraph (C) of this rule, using the ISO 8178-1 test and has resulted in diesel particulate matter emissions that do not exceed an average concentration of 0.12 milligrams per cubic meter (mg/m<sup>3</sup>) of air when diluted by one hundred per cent of the MSHA 30 C.F.R. Part 7 approval plate ventilation rate for that diesel engine. The website for the ISO International Organization for Standardization is <http://www.iso.org/iso/home.htm>. Should MSHA promulgate new regulations that change the 30 C.F.R. Part 7 approval plate ventilation rate, the dilution percentage relative to the approval plate ventilation rate will be increased or decreased on a direct ratio basis as approved by the chief.
- (B) The exhaust emissions control and conditioning system shall be required to successfully complete a single series of laboratory tests conducted at a laboratory accepted by the chief for each diesel engine.
- (C) An exhaust emissions control and conditioning system may be approved by the chief for multiple diesel engine applications through a single series of ISO 8178-1 laboratory tests, only if data is provided to the chief and he or she determines that the exhaust emissions control and conditioning system will meet, for each diesel engine, the in-laboratory diesel particulate matter standard established in paragraph (A) of this rule. Data provided to the chief shall include diesel particulate matter production rates for each engine as measured during an ISO 8178-1 test, if available. If ISO 8178-1 test data for diesel particulate matter production is not available for a specific diesel engine, comparable data may be provided to the chief that reliably verifies that the exhaust emissions control and conditioning system will meet, for that diesel engine, the in-laboratory diesel particulate matter standard established in paragraph (A) of this rule. This standard shall only be used for in-laboratory testing for approval of diesel-powered equipment for use underground.
- (D) Components of exhaust emissions system. The exhaust emissions control and conditioning system shall include the following:
  - (1) A diesel particulate matter (DPM) filter that has proven to be capable of a reduction in total diesel particulate matter to a level that does not exceed the requirements of paragraph (A) of this rule. However, the chief may request the technical advisory committee to evaluate, in accordance with rule 1501:10-2-27 of the Administrative Code, alternative technologies that have the ability to meet the standard of paragraph (A) of this rule;

- (2) An oxidation catalyst or other gaseous emissions control device capable of reducing undiluted carbon monoxide emissions to one hundred parts per million (ppm) or less under all conditions of operation at normal engine operating temperature range;
  - (3) An engine surface temperature control capable of maintaining significant external surface temperatures below three hundred and two degrees Fahrenheit;
  - (4) A system capable of reducing the exhaust gas temperature below three hundred and two degrees Fahrenheit;
  - (5) An automatic engine shutdown system that shuts off the engine before the exhaust gas temperature reaches three hundred and two degrees Fahrenheit and, if water-jacketed components are used, before the engine coolant temperature reaches two hundred and twelve degrees Fahrenheit. A warning shall be provided to alert the equipment operator prior to engine shutdown;
  - (6) A spark arrestor system;
  - (7) A flame arrestor system;
  - (8) A sampling port for measurement of undiluted and untreated exhaust gases as they leave the engine;
  - (9) A sampling port for measurement of treated undiluted exhaust gases before they enter the mine atmosphere; and
  - (10) For permissible diesel equipment, any additional MSHA regulations must be met.
- (E) Diagnostics systems. On-board engine performance and maintenance diagnostics systems shall be capable of continuously monitoring and giving readouts to assure compliance with paragraphs (D)(1) to (D)(10) of this rule. The diagnostics system shall identify levels that exceed the engine and/or component manufacturer's recommendation or the applicable MSHA or chief's requirements as to the following:
- (1) Engine speed;

- (2) Operating hour meter;
  - (3) Total intake restriction;
  - (4) Total exhaust gas backpressure;
  - (5) Cooled exhaust gas temperature;
  - (6) Cooled temperature;
  - (7) Engine oil pressure; and
  - (8) Engine oil temperature.
- (F) For dates of federal rules referenced in this rule, see rule 1501:10-1-07 of the Administrative Code.

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1501:10-2-06

**Ventilation.**

- (A) Minimum quantities of ventilating air where diesel-powered equipment is operated shall be maintained pursuant to this rule.
- (B) Approval plate for diesel-powered equipment. The chief shall require that an MSHA approval plate be attached to each specific model of the diesel-powered equipment that is approved by the chief in accordance with rule 1501:10-2-04 of the Administrative Code. The approval plate shall specify the minimum ventilating air quantity for the specific model of diesel-powered equipment. The minimum ventilating air quantity shall be the amount of air necessary at all times to maintain the exhaust emissions at levels not exceeding the exposure limits established in rule 1501:10-2-07 of the Administrative Code.
- (C) Minimum air quantities. The minimum quantity of air in any split of air where an individual unit of diesel-powered equipment is being operated shall be at least that specified on the approval plate for that equipment. Air quantity measurements to determine compliance with this requirement shall be made at the individual unit of diesel-powered equipment.
- (D) Minimum air quantity when multiple units in operation. When multiple units of diesel-powered equipment are operated, the minimum quantity of air shall be at least one hundred per cent of the MSHA 30 C.F.R. Part 7 approval plate quantity for each unit operating in that split. Air quantity measurements to determine compliance with this requirement shall be made at the most downwind unit of diesel-powered equipment that is being operated in that split of air. Should MSHA promulgate new regulations that change the 30 C.F.R. Part 7 approval plate ventilation rate, the minimum quantity where multiple units are operated shall be revised on a direct ratio basis as approved by the chief.
- (E) The minimum quantity of air on a split of air where diesel-powered equipment is operated shall meet the minimum air quantity requirements of paragraphs (A) to (D) of this rule, and shall be specified in the mine's diesel ventilation plan.
- (F) For dates of federal rules referenced in this rule, see rule 1501:10-1-07 of the Administrative Code.

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1501:10-2-07

**Exhaust emissions monitoring and control.**

- (A) Threshold limits for exhaust emissions. For the purposes of monitoring and controlling exhaust emissions, the following threshold limits of ambient concentration of exhaust emissions in the mine atmosphere shall apply:

Threshold limit values (TLV)

Carbon Monoxide (CO)	35 parts per million (ppm)
Nitrogen Dioxide (NO <sub>2</sub> )	3 parts per million (ppm)

The concentration of these exhaust emissions shall be measured at the equipment operator's or equipment attendant's position and in by the last piece of diesel-powered equipment operating in the same split of air. A person qualified to take measurements in accordance with 30 C.F.R. 75.150 shall take measurements weekly or more often if necessary pursuant to the requirements of this chapter. The ambient emissions limits for each piece of diesel-powered equipment shall not be exceeded.

- (B) Measurement of exhaust emissions shall be made with a sampling instrument no less precise than detector tubes.
- (C) If the concentration of any of the emissions listed in paragraph (A) of this rule is seventy-five per cent or more of its threshold limit, the mine operator shall immediately make changes to the use of the diesel equipment, mine ventilation, or other modifications to the mining process to maintain a concentration of less than seventy-five per cent of the threshold limit.
- (D) Required action if threshold limits are exceeded. If the concentration of any of the emissions listed in paragraph (A) of this rule exceeds the threshold limit, the mine operator shall immediately remove the diesel equipment operating in that split of air from service and take corrective action. After the mine operator has taken corrective action, the diesel equipment may be returned to service in its regular operating mode for emissions testing purposes only, and emissions testing shall be conducted immediately to assure that the concentration does not exceed seventy-five per cent of the threshold limit. The mine operator shall take corrective action until the concentration does not exceed seventy-five per cent of the threshold limit and shall not return the diesel equipment to full operation until a threshold limit of less than seventy-five per cent is achieved.

- (E) In addition to the other maintenance requirements set forth in this chapter, the mine

operator shall make repairs and adjustments, and replacements as necessary, and conduct testing in compliance with the following requirements:

- (1) Certain repairs and adjustments to be performed only by mechanic authorized by the engine manufacturer. Repair or adjustment of the fuel injection system shall be performed only by a qualified mechanic authorized by the engine manufacturer;
  - (2) Complete testing of the emissions system in accordance with rule 1501:10-2-21 of the Administrative Code shall be conducted prior to putting any piece of diesel-powered equipment into service after any repair or adjustment to the fuel delivery system, engine timing, or exhaust emissions control and conditioning system; and
  - (3) Service and maintenance of filters and exhaust system. Service and maintenance of the intake air filter, exhaust particulate filter and the exhaust system shall be performed at specific time intervals. The specific time intervals shall be based on the component manufacturer's recommendation, compliance with the engine or emissions control operation specifications and, as needed, based on the on-board diagnostics and/or emissions test results. The mine operator shall maintain accurate records of all such service and maintenance, and shall make the records available for review by the chief or his or her representative and the miners of the mine.
- (F) For dates of federal rules referenced in this rule, see rule 1501:10-1-07 of the Administrative Code.

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1501:10-2-08

**Underground diesel fuel storage facilities.**

- (A) Underground diesel fuel storage facilities shall meet the requirements of this rule.
- (B) Diesel fuel standards. Diesel-powered equipment shall be used underground only with fuel that meets the standards of the most recently approved U.S. environmental protection agency guidelines for over-the-road fuel. The fuel shall also meet the ASTM D975 fuel standards with a flash point of one hundred degrees Fahrenheit or greater, at standard temperature and pressure. The website for ASTM international is <http://www.astm.org>. The operator shall maintain and make available to the chief for review, a copy of the most recent delivery receipt from the supplier that will prove that the fuel used underground meets the standards listed in this paragraph.
- (C) Underground diesel fuel storage facilities shall meet the following general requirements:
- (1) Permanently affixed underground diesel fuel storage tanks are prohibited; and
  - (2) No more than five hundred gallons of diesel fuel shall be stored in each underground diesel fuel storage facility.
- (D) An underground diesel fuel storage facility shall be located:
- (1) At least one hundred feet from shafts, slopes, shops and explosives magazines;
  - (2) At least twenty-five feet from trolley wires, haulage ways, power cables and electric equipment not necessary for the operation of the storage facility; and
  - (3) In an area that is as dry as practicable.
- (E) Construction and safety requirements for underground diesel fuel storage facilities. An underground diesel fuel storage facility shall:
- (1) Be constructed of noncombustible materials;
  - (2) Have either self-closing or automatic-closing doors, except for a short-term underground storage facility that has no doors;

- (3) Be ventilated directly into the return air course using noncombustible materials;
  - (4) Be equipped with an automatic fire suppression system that complies with rule 1501:10-2-12 of the Administrative Code. A site-specific alternate method of complying with this paragraph may be approved by the chief;
  - (5) Be equipped with at least two portable twenty-pound multipurpose dry-chemical type fire extinguishers that are maintained in accordance with MSHA regulations;
  - (6) Be marked with conspicuous signs designating combustible liquid storage; and
  - (7) Be included in the pre-shift examination.
- (F) Safety measures related to welding and cutting. Welding or cutting shall not be done within fifty feet of an underground diesel fuel storage facility except as provided under paragraphs (F)(1) and (F)(2) of this rule. When it is necessary to weld, cut or solder pipelines, cylinders, tanks or containers that may have contained diesel fuel, the following requirements shall apply:
- (1) Cutting or welding shall not be performed on or within containers or tanks that have contained combustible or flammable materials until such containers or tanks have been thoroughly purged, cleaned or inerted, and a vent or opening is provided to allow for sufficient release of any built-up pressure before heat is applied; and
  - (2) Diesel fuel shall not be allowed to enter pipelines or containers that have been welded, soldered, brazed or cut until the metal has cooled to ambient temperature.

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1501:10-2-09

**Transfer of diesel fuel.**

- (A) Diesel fuel shall be transferred as provided in this rule.
- (B) Pump transfers. When diesel fuel is transferred by means of a pump and a hose equipped with a nozzle containing a self-closing valve, a powered pump may be used only if:
  - (1) The hose is equipped with a nozzle containing a self-closing valve without a latch-open device; and
  - (2) The pump is equipped with an accessible emergency shut-off switch.
- (C) Diesel fuel shall not be transferred using compressed gas.
- (D) Diesel fuel shall not be transferred to the fuel tank of diesel-powered equipment while the equipment's engine is running.
- (E) A diesel fuel piping system shall be used only to transport diesel fuel from the surface to a single underground diesel fuel transfer point.
- (F) Diesel fuel piping systems shall be designed and operated as dry systems. For the purposes of this rule, "dry system" means that, when not being used to refill an underground diesel fuel transfer point, the piping system shall be empty.
- (G) Standards for pipes, valves and fittings. All piping, valves and fittings shall:
  - (1) Be capable of withstanding working pressures and stresses;
  - (2) Be capable of withstanding four times the static pressures recommended by the manufacturer;
  - (3) Be compatible with diesel fuel; and
  - (4) Be maintained in a manner that prevents leakage.
- (H) Manual shutoff valves. A vertical pipeline shall have manual shutoff valves installed at the surface filling point and at the underground discharge point.

- (I) Exposed fuel pipelines. An unburied diesel fuel pipeline shall not exceed three hundred feet in length and shall have shutoff valves located at each end of the unburied pipeline.
- (J) Horizontal pipelines shall not be used to distribute fuel.
- (K) When boreholes are used, a diesel fuel piping system shall not be located in a borehole which also contains electric power cables.
- (L) A diesel fuel pipeline located in a shaft shall be included as part of the required examination of the shaft, and a record shall be made in the shaft examination book as to the pipeline's condition.
- (M) A diesel fuel piping system located in an entry or crosscut shall not be located on the same side of the entry or crosscut as electric cables or power lines.
- (N) A diesel fuel pipeline shall not be located in a trolley-haulage entry, except that it may cross perpendicular to the entry if it is buried or otherwise protected from damage in a steel conduit or equivalent protective device and sealed.
- (O) A diesel fuel piping system shall be protected from damage by being buried or contained in a steel conduit or equivalent protective device and sealed.



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1501:10-2-10

**Containers for transport of diesel fuel.**

- (A) Containers for the transport of diesel fuel shall meet the requirements of this rule.
- (B) Diesel fuel shall be transported only in containers specifically designed for the transport of diesel fuel.
- (C) Requirements and standards for safety cans:
  - (1) Safety cans shall be used only for emergency fueling;
  - (2) A safety can shall be clearly marked, have a maximum capacity of five gallons, be constructed of metal, and equipped with a nozzle and self-closing valves; and
  - (3) No more than one safety can, conspicuously marked, shall be transported on a vehicle at a time.
- (D) Standards for containers other than safety cans. Any container other than a safety can that is used to transport diesel fuel shall have the following:
  - (1) A device for venting;
  - (2) A self-closing cap;
  - (3) A vent pipe that is at least as large as the fill or withdrawal connection, whichever is larger, and that has an inside diameter of not less than one and one-fourth inch;
  - (4) A liquid-tight connection for each container opening that is identified by conspicuous markings and closed when not in use; and
  - (5) A shutoff valve located within one inch of the tank shell on each connection through which liquid can normally flow.
- (E) Containers with manual gauging. When a container has an opening for manual gauging, the opening shall have a liquid-tight cap or cover which shall be kept closed when not open for gauging.

- (F) Capacity of containers. A container used for the transport of diesel fuel shall not exceed a capacity of five hundred gallons.
- (G) Any container, other than a safety can, that is used for the transport of diesel fuel shall be permanently fixed to the transportation unit.
- (H) Method of transportation. Diesel fuel transportation units shall not be transported with any other cars, except that two diesel fuel transportation units up to a maximum of five hundred gallons each, or one thousand gallons total maximum, may be transported together.
- (I) Diesel fuel shall not be transported on conveyor belts.
- (J) Fire extinguishers. When transporting diesel fuel in a container other than a safety can, a fire extinguisher shall be provided on each end of the transportation unit (two extinguishers required.) Each of these two fire extinguishers shall be a portable twenty-pound multipurpose dry-chemical type fire extinguisher maintained in accordance with MSHA regulations.
- (K) Fire suppression systems for diesel transportation units. A diesel fuel transportation unit shall have a fire suppression system that meets the requirements of rule 1501:10-2-11 of the Administrative Code.
- (L) Limitations where trolley wire is present. In a mine where trolley wire is used, diesel fuel transportation units shall be provided with insulating material to protect the units from energized trolley wire. The distance between a diesel fuel transportation unit and the trolley wire shall not be less than twelve inches, or, if the distance is less than twelve inches, the trolley wire shall be de-energized when the diesel fuel transportation unit is transported through the area.
- (M) An unattended diesel fuel transportation unit shall be parked only in an underground diesel fuel storage facility.

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1501:10-2-11

**Fire suppression for equipment and transportation.**

- (A) Fire suppression systems for diesel-powered equipment and fuel transportation units shall meet the requirements of this rule.
- (B) The fire suppression system shall be an automatic multipurpose dry-powder type fire suppression system suitable for the intended application and listed or approved by a nationally recognized independent testing laboratory. The system shall meet the following installation requirements:
  - (1) The system shall be installed in accordance with the manufacturer's specifications and the limitations of the listing or approval;
  - (2) The system shall be installed in a protected location or guarded to minimize damage to it from routine operations;
  - (3) Suppressant agent distribution tubing or piping of the system shall be secured and protected against damage, including pinching, crimping, stretching, abrasion and corrosion; and
  - (4) Discharge nozzles of the system shall be positioned and aimed for maximum fire suppression effectiveness in the protected areas. Nozzles shall also be protected against the entrance of foreign materials such as mud, coal dust or rock dust that could prevent proper discharge of suppressant agent.
- (C) The fire suppression system shall provide automatic fire detection and suppression for all of the following:
  - (1) The engine, transmission, hydraulic pumps and tanks, fuel tanks, exposed brake units, air compressors and battery areas, as applicable, on all diesel-powered equipment; and
  - (2) Fuel containers and electric panels or controls used during fuel transfer operations on fuel transportation units.
- (D) The fire suppression system shall include a fire alarm and system fault annunciator that can be seen and heard by the equipment operator.
- (E) The fire suppression system shall provide for automatic engine shutdown when the alarm alerts the operator. Engine shutdown and discharge of suppressant agent may

be delayed for a maximum of fifteen seconds after the fire alarm annunciator alerts the operator.

- (F) Manual actuators. At least two manual actuators shall be provided with at least one manual actuator at each end of the equipment. If the equipment is provided with an operator's compartment, one of the mechanical actuators shall be located in the compartment within easy reach of the operator. For stationary equipment, the two manual actuators shall be located with at least one actuator on the stationary equipment and at least one actuator a safe distance away from the equipment, and in intake air.

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1501:10-2-12

**Fire suppression for underground diesel fuel storage facilities.**

- (A) Fire suppression systems for underground diesel fuel storage facilities shall meet the requirements of this rule.
- (B) The fire suppression system shall be an automatic multipurpose dry-powder type fire suppression system or other system of equal capability, suitable for the intended application and listed or approved by a nationally recognized independent testing laboratory. The system shall meet the following installation requirements:
  - (1) The system shall be installed in accordance with the manufacturer's specifications and the limitations of the listing or approval;
  - (2) The system shall be installed in a protected location or guarded to minimize physical damage to it from routine operation;
  - (3) Suppressant agent distribution tubing or piping of the system shall be secured and protected against damage, including pinching, crimping, stretching, abrasion and corrosion; and
  - (4) Discharge nozzles of the system shall be positioned and aimed for maximum fire suppression effectiveness in the protected areas. Nozzles must also be protected against the entrance of foreign materials such as mud, coal dust and rock dust that could prevent proper discharge of suppressant agent.
- (C) Automatic fire detection and suppression. The fire suppressant system shall provide automatic fire detection and suppression for the fuel storage tanks, containers, safety cans, pumps, electrical panels and control equipment in fuel storage areas.
- (D) Types of alarms. Audible and visual alarms to warn of fire or system faults shall be provided at the protected area and at a surface location that is always staffed when persons are underground. A means shall also be provided for warning all endangered persons in the event of fire.
- (E) Manual actuators. Fire suppression systems shall include two manual actuators with at least one located within the fuel storage facility and at least one located a safe distance away from the storage facility, and in intake air.
- (F) The fire suppression system shall remain operative in the event of electrical system failure.



- (G) Monitoring of system. If electrically operated, the system's detection and actuation circuits shall be monitored and provided with status indicators showing power and circuit continuity. If not electrically operated, the system shall be provided with a means to indicate the functional readiness status of the system.
- (H) Weekly visual inspection. Each fire suppression device shall be visually inspected at least once each week by a person qualified to make such inspections.
- (I) Maintenance, testing and record keeping. Each fire suppression device shall be maintained and tested in accordance with the rules of this chapter. A record of the weekly inspection of a device shall be kept at an appropriate location for the device.
- (J) Instruction of miners. All miners normally assigned to the active workings of a mine shall be instructed in the use of all fire suppression devices installed at the mine, including the safeguards available for each device and any hazards inherent to the operation of a device.

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1501:10-2-13

**Prohibition on the use of certain starting aids.**

The use of volatile or chemical starting aids is prohibited.

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1501:10-2-14

**Fueling.**

- (A) Restrictions on fueling locations. Fueling of diesel-powered equipment shall not be conducted in the intake escape-way unless the mine design and entry configuration make it necessary. In those cases where fueling in the intake escape-way is necessary, the mine operator shall submit a plan for approval to the chief, outlining the special safety precautions that will be taken to insure the protection of miners. The submitted plan shall specify a location, such as the end of the tail piece, the track, or adjacent to the load out point, where fueling shall be conducted in the intake escape-way, and all other safety precautions that shall be taken. The plan shall also include an examination of the area for spillage or fire by a qualified individual.
- (B) Diesel fuel and other combustible materials shall be cleaned up and shall not be permitted to accumulate anywhere in an underground mine, or on diesel-powered or electric equipment located therein.
- (C) At least one individual who has successfully completed the refueling procedure training of paragraph (B)(6) of rule 1501:10-2-23 of the Administrative Code shall be on duty at the mine when diesel-powered equipment or mobile fuel transportation equipment is being used or when any fueling of diesel-powered equipment is being conducted.

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1501:10-2-15

**Fire and safety training.**

- (A) Training of underground employees. Prior to the initial deployment of underground diesel equipment, all underground employees at the mine shall receive special instruction related to fighting fires involving diesel fuel. This training may be included in annual refresher training under MSHA regulations 30 C.F.R. Part 48, regarding the training and retraining of miners, or included in the fire drills required under MSHA regulations 30 C.F.R. 75.1502, regarding the program of instruction; location and use of fire fighting equipment; the location of escapeways, exits and routes of travel; evacuation procedures; and fire drills.
- (B) Training of miners. Prior to the initial deployment of underground diesel equipment, all miners shall be trained in precautions for safe and healthful handling and disposal of diesel-powered equipment filters. All used intake air filters, exhaust diesel particulate matter filters, and engine oil filters shall be placed in their original containers or other suitable enclosed containers, and removed from the underground mine to the surface. Arrangements will be made for safe handling and disposal of these filters within a timely manner after they have reached the surface.
- (C) For dates of federal rules referenced in this rule, see rule 1501:10-1-07 of the Administrative Code.

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1501:10-2-16

**Maintenance.**

- (A) Diesel-powered equipment shall be maintained in an approved and safe condition as described in this chapter or shall be removed from service.
- (B) Diesel-powered equipment maintenance plan. An operator choosing to use diesel-powered equipment in an underground coal mine shall develop a maintenance plan and submit the plan to the chief for approval. The chief may request the diesel technical advisory committee to evaluate the maintenance plan and make a recommendation to the chief for approval or disapproval of the plan in accordance with rule 1501:10-2-27 of the Administrative Code. If the maintenance plan is approved by the chief, the mine operator shall implement the plan, maintain all records required by rule 1501:10-2-17 of the Administrative Code, and make them available for inspection by the chief or his or her representative.
- (C) To obtain and maintain approval of a complete diesel-powered equipment package, the mine operator shall comply with the following requirements:
  - (1) All service, maintenance and repairs of approved complete diesel-powered equipment packages shall be performed by mechanics that are trained and qualified in accordance with rule 1501:10-2-24 of the Administrative Code, except for the repairs, adjustment and testing that shall be performed by a mechanic authorized by the engine manufacturer in accordance with paragraph (E)(1) of rule 1501:10-2-07 of the Administrative Code;
  - (2) Service and maintenance of approved complete diesel-powered equipment packages shall be performed according to:
    - (a) The specified routine maintenance schedule;
    - (b) On-board performance and maintenance diagnostics readings;
    - (c) Emissions test results; and
    - (d) Component manufacturers' recommendations.
- (D) Failure to comply with a maintenance plan. Failure of the mine operator to comply with the maintenance requirements of this chapter may result in the revocation of the chief's approval of the complete diesel-powered equipment package. Upon receiving notice from the chief of failure to comply with the maintenance plan, the

mine operator shall have thirty days to submit a plan to achieve and maintain compliance with the maintenance requirements of this chapter. If at any time the chief determines that the mine operator is unable or unwilling to comply with the maintenance plan, the chief shall revoke approval of the mine's complete diesel-powered equipment package and shall prohibit the underground use of all diesel-powered equipment at that mine.

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1501:10-2-17

**Records.**

- (A) A record shall be made of all emissions tests, preoperational examinations, and maintenance and repairs of all equipment in a mine's complete diesel-powered equipment package.
- (B) The records made pursuant to this rule shall meet the requirements of this rule.
- (C) Written certification. The person performing the emissions test, preoperational examination, maintenance or repair shall certify by date, time, engine hour reading and signature that the emissions test, examination, maintenance or repair was made.
- (D) Results of tests and examinations. Records of emissions tests and preoperational examinations shall include the specific results of such tests and examinations.
- (E) Records of maintenance and repairs shall include the work that was performed, any fluids or oil added, parts replaced or adjustments made, and the results of any subsequently required emissions testing.
- (F) Retention of pre-operational examination record. Records of the pre-operational examinations required under paragraph (A) of rule 1501:10-2-18 of the Administrative Code shall be retained for the previous one-hundred-hour maintenance cycle.
- (G) Certain records to be countersigned. Records of emissions tests, one-hundred-hour maintenance tests, and repairs shall be countersigned once each week by either the certified mine electrician or certified mine foreperson.
- (H) Other records retention. All records required by this rule, except those listed in paragraph (F) of this rule, shall be retained for at least one year at a surface location at the mine, and made available for inspection by the chief or his or her representative and by miners and their representatives.

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1501:10-2-18

**Duties of equipment operator.**

(A) Pre-operational examination. Prior to using a piece of diesel-powered equipment during a shift, an equipment operator shall conduct a pre-operational examination as follows:

- (1) Check the exhaust emissions control and conditioning system components to determine that the components are in place and not damaged or leaking;
- (2) Assure that the equipment is clean and free of accumulations of combustibles;
- (3) Assure that the machine is loaded safely;
- (4) Check for external physical damage;
- (5) Check for loose or missing connections;
- (6) Check engine oil level;
- (7) Check transmission oil level;
- (8) Check other fluid levels, if applicable;
- (9) Check for hydraulic, coolant and oil leaks;
- (10) Check fan, water pump and other belts;
- (11) Check the fan for damage;
- (12) Check guards;
- (13) Check the fuel level;
- (14) Check for fuel leaks; and
- (15) Comply with record keeping requirements pursuant to rule 1501:10-2-17 of the Administrative Code.

(B) Operational examination. After the engine is started and has reached normal operating temperature, the equipment operator shall conduct an examination as follows:

- (1) Check all onboard engine performance and maintenance diagnostics system gauges for proper operation and in-range readings. The equipment operator shall immediately shut down the engine and notify mine management if the onboard readings indicate any of the following:
  - (a) Intake restriction at full engine speed is greater than the manufacturer's recommendation;
  - (b) Exhaust restriction at full engine speed is greater than the manufacturer's recommendation;
  - (c) Coolant temperature is at or near two hundred twelve degrees Fahrenheit;
  - (d) Low engine oil pressure; or
  - (e) High engine oil temperature.
- (2) Check safety features, including, but not limited to, the throttle, brakes, steering, lights and horn; and
- (3) Comply with record keeping requirements of rule 1501:10-2-17 of the Administrative Code.

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1501:10-2-19

**Schedule of maintenance.**

(A) At intervals not to exceed one hundred hours of engine operation, or at intervals specified and approved by the chief, a mechanic qualified in accordance with rule 1501:10-2-24 of the Administrative Code shall perform the following maintenance on all diesel-powered equipment and make all necessary adjustments and repairs to meet the manufacturer's specifications and the requirements of this chapter, or remove the equipment from service:

- (1) Wash or steam-clean the equipment;
- (2) Check for and remove any accumulations of coal, coal dust or other combustible materials;
- (3) Check the equipment for damaged or missing components or other visible defects;
- (4) Conduct electrical and safety component inspections;
- (5) Replace engine oil and filter at the standard one hundred hour interval unless an extended interval is approved by the chief in accordance with paragraph (B) of this rule;
- (6) Check the transmission oil level and add oil, if necessary;
- (7) Check hydraulic oil level and add oil, if necessary;
- (8) Check the engine coolant level and add coolant, if necessary;
- (9) Check all other fluid levels and add fluid, if necessary;
- (10) Check for oil, coolant and other fluid leaks;
- (11) Inspect the cooling fan, radiator and shroud. Remove any obstructions and make necessary repairs;
- (12) Check all belts. Tighten or replace, if necessary;
- (13) Check the battery and service as necessary;

- (14) Check the automatic fire suppression system;
- (15) Check the portable fire extinguisher;
- (16) Check the lights;
- (17) Check the warning devices;
- (18) With the engine operating, check, and replace or repair as necessary, the following:
  - (a) Oil pressure;
  - (b) Intake air restriction at full engine speed;
  - (c) Exhaust gas restriction at full engine speed;
  - (d) Exhaust flame arrestor; and
  - (e) All gauges and controls;
- (19) Conduct repeatable loaded engine-operating test in accordance with rule 1501:10-2-21 of the Administrative Code;
- (20) If the equipment is approved with a non-disposable diesel particulate filter, a smoke dot test of the filtered exhaust must be performed at this time. The results of the smoke dot test shall be recorded on the one hundred hour emissions form. If the interpreted smoke dot number is greater than three, but less than four, the operator shall immediately, in writing, notify the chief. The chief may request the technical advisory committee, in accordance with rule 1501:10-2-27 of the Administrative Code, to conduct an investigation to determine if the filter is functioning properly;
- (21) Evaluate and interpret the results of all of the above tests and examinations, and make all necessary adjustments and repairs or remove the equipment from service; and
- (22) Comply with record-keeping requirements of rule 1501:10-2-17 of the Administrative Code.

(B) Extended interval for replacement of engine oil and filter.

- (1) If a mine operator wants to replace engine oil and filter at an interval greater than the standard one hundred hour interval, the operator shall:
  - (a) Have an appropriate independent third party conduct tests to provide empirical evidence that replacing engine oil and filter at a specified interval of greater than one hundred hours poses no increased health hazard to underground miners;
  - (b) Obtain approval of the results of such tests from the equipment manufacturer for equipment to be used in an underground mine; and
  - (c) Submit to the chief a request for a specified extended interval for replacement of engine oil and filter, including the test data and manufacturer approval of paragraphs (B)(1)(a) and (B)(1)(b) of this rule.
- (2) The chief may request the technical advisory committee, in accordance with rule 1501:10-2-27 of the Administrative Code, to evaluate the results of the tests conducted pursuant to paragraph (B)(1)(a) of this rule and to review and make a recommendation regarding the extended interval. After review of the information submitted under paragraph (B) of this rule, the chief may approve, in writing, a specified extended interval for replacing engine oil and filter.
- (3) The mine operator shall keep a copy of the approval letter for the specified extended interval for replacing engine oil and filter with the maintenance records for the piece of equipment for which the extended interval was granted for the duration of equipment use, and shall make the approval letter available to the chief or his or her representative, miners of the mine, and other interested parties upon request.

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1501:10-2-21

**Equipment maintenance diagnostic testing.**

- (A) Exhaust emissions for diesel-powered equipment shall be monitored and controlled using the control and conditioning systems of rule 1501:10-2-05 of the Administrative Code, the threshold limits and other requirements of rule 1501:10-2-07 of the Administrative Code, the baseline exhaust emissions values established in rule 1501:10-2-20 of the Administrative Code, and the diagnostic testing of this rule.
- (B) Equipment maintenance diagnostic testing. At intervals not to exceed one hundred hours of engine operation, a mechanic qualified in accordance with rule 1501:10-2-24 of the Administrative Code shall perform equipment maintenance diagnostic testing of each piece of diesel-powered equipment in the mine and make all necessary adjustments and repairs to meet the manufacturer's specifications and the requirements of this chapter, or remove the equipment from service. The qualified mechanic shall:
- (1) Verify the identification numbers on the equipment;
  - (2) Check the level of the engine lubricating oil;
  - (3) Check the level of the transmission fluid;
  - (4) Set the brakes and chock the wheels;
  - (5) Install a functioning portable carbon monoxide (CO) sampling device into the untreated exhaust port coupling provided in the operator's cab;
  - (6) Start the engine and allow it to attain normal operating temperature;
  - (7) At high idle speed, check the intake restriction and the exhaust back pressure;
  - (8) If the intake restriction is more than the manufacturer's maximum specified intake restriction, replace the intake filter with a new one;
  - (9) If exhaust gas backpressure is above that specified by the manufacturer, take steps to bring the exhaust gas backpressure back within the manufacturer's specified limit prior to again beginning the equipment maintenance diagnostic testing of paragraph (B) of this rule;

- (10) For mobile equipment, shift into the highest gear and fully accelerate the engine, or for stationary equipment, induce a load and put the engine at full throttle. Maintain full acceleration or full throttle for a minimum of sixty seconds prior to taking the reading required under paragraph (B)(11) of this rule to dissipate any reading inaccuracies due to turbo lag;
  - (11) Start the portable CO sampling device, record the CO level after sixty seconds, after seventy-five seconds, and after ninety seconds, and then take the average of these three readings;
  - (12) Install the portable CO sampling device into the treated exhaust port coupling provided in the operator's cab and repeat steps of paragraphs (B)(10) and (B)(11) of this rule; and
  - (13) Comply with record keeping requirements of rule 1501:10-2-17 of the Administrative Code.
- (C) For any diesel-powered equipment tested under paragraph (B) of this rule, if the average CO reading for untreated exhaust emissions is greater than twice the baseline established under paragraph (B) of rule 1501:10-2-20 of the Administrative Code, or if the average CO reading for treated exhaust gas is greater than one hundred parts per million (ppm), the equipment has failed the diagnostic test. A mechanic qualified in accordance with rule 1501:10-2-24 of the Administrative Code shall service and retest the equipment until it meets the standards of this chapter before the equipment is returned to regular service.
- (D) The chief may approve an alternative to the equipment maintenance diagnostic testing procedure of paragraph (B) of this rule.

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1501:10-2-23

**Equipment-specific training for diesel-powered equipment operators.**

- (A) Upon successful completion of the training required by rule 1501:10-2-22 of the Administrative Code, the equipment operator shall complete equipment-specific training in accordance with this rule. Successful completion of equipment-specific training shall be documented on the certificate of qualification issued by the mine operator under paragraphs (D) and (G) of rule 1501:10-2-22 of the Administrative Code.
- (B) The mine operator shall provide equipment-specific, hands-on orientation training to the equipment operators in an area of the mine where the diesel-powered equipment will be operated. This orientation shall be specific to the type and make of the diesel-powered equipment, and shall be presented to groups no larger than twelve persons per instructor unless otherwise approved by the chief in an approved training plan. The following subjects shall be included in the orientation training:
- (1) Equipment layout, which shall include instruction relating to the layout of the equipment, the equipment operator's compartments, and the controls;
  - (2) Pre-operation inspection, which shall include instruction relating to the pre-operation inspection procedures required by paragraph (A) of rule 1501:10-2-18 of the Administrative Code and review of specific details of the inspection and location of the components to be inspected;
  - (3) Equipment limitations, which shall include instruction relating to equipment performance, speeds, capacities and blind areas;
  - (4) Operating areas, which shall include instruction relating to areas in which the equipment may be operated;
  - (5) Operation, which shall include instruction relating to the controls, gauges and warning devices and safe operating limits of all indicating gauges;
  - (6) Refueling procedure, which shall include instruction relating to fuel handling, permissible refueling areas, spill prevention, cleanup and potential hazards from diesel fuel;
  - (7) Emergency devices, which shall include instruction relating to the location and use of the fire extinguisher and fire suppression devices; and



- (8) Driving practice, which shall include supervised operation of the equipment.

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1501:10-2-24

**Diesel mechanic training.**

- (A) Diesel mechanic training and qualification shall meet the requirements of this rule.
- (B) Diesel mechanics shall be trained and qualified to perform maintenance, repairs and testing of the features of the diesel-powered equipment used at the mine or mines where he or she is employed, as certified by MSHA and approved by the chief pursuant to rule 1501:10-2-04 of the Administrative Code.
- (C) Qualification. To be qualified to work on the specific diesel-powered equipment used at the mine or mines where he or she is employed, a diesel mechanic shall successfully complete an eight-hour training course approved by the chief pursuant to rules 1501:10-2-22 and 1501:10-2-23 of the Administrative Code for the specific piece of diesel equipment he or she will be working on, and a sixteen-hour diesel mechanic training course approved by the chief pursuant to this rule. Additional engine-specific training shall be provided to a diesel mechanic in accordance with the plan approved by the chief.
- (D) The mine operator shall submit a diesel mechanic training plan to the chief for approval which shall include the requirements of this paragraph and the requirements for refresher training in paragraph (E) of this rule. The chief shall approve the plan prior to its being used for training. The diesel mechanic training plan shall be for a minimum sixteen hours and shall include training in the following subjects:
- (1) Federal and state requirements regulating the use of diesel equipment;
  - (2) Company policies and rules related to the use of diesel equipment;
  - (3) Emissions control system design and component technical training;
  - (4) On-board engine performance and maintenance diagnostics system design, and component technical training;
  - (5) Service and maintenance procedures and requirements for the emissions control systems;
  - (6) Emissions testing procedures and evaluation, and interpretation of test results;
  - (7) Troubleshooting procedures for the emissions control systems;

- (8) Fire protection systems, testing and maintenance;
  - (9) Fire and ignition sources, and their control and elimination;
  - (10) Fuel system maintenance and safe fueling procedures;
  - (11) Intake air system design and components technical training, and maintenance procedures;
  - (12) Engine shutdown device tests and maintenance;
  - (13) Special instructions regarding components, such as the fuel injection system, that shall be repaired and adjusted only by a qualified mechanic who has received special training and is authorized to make such repairs or adjustments by the component manufacturer;
  - (14) Instruction on record keeping requirements for maintenance procedures and emissions testing; and
  - (15) Other subjects determined by the chief to be necessary to address specific health and safety needs.
- (E) Eight hours of refresher training shall be required annually for all diesel mechanics. The diesel mechanic training plan submitted by the operator under paragraph (D) of this rule shall include an annual refresher training plan of eight hours for diesel mechanics. The annual retraining shall include refresher training as well as new procedure and new technology training as necessary. This training shall be separate from the refresher training required by MSHA regulations 30 C.F.R. Part 48 and the electrical training required by MSHA. The mine operator shall furnish all required training and refresher training required under this rule. The employees shall suffer no loss of pay for attending training and refresher training.
- (F) For dates of federal rules referenced in this rule, see rule 1501:10-1-07 of the Administrative Code.

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1501:10-2-25

**Additional requirements for operation of diesel-powered equipment.**

- (A) In addition to the other requirements of this chapter, diesel-powered equipment shall be operated pursuant to the requirements of this rule.
- (B) All diesel-powered equipment shall be attended while in operation with the engine running in underground mines.
- (C) Unnecessary idling of diesel-powered equipment shall be prohibited.
- (D) The mine operator shall maintain all roadways upon which diesel-powered equipment is operated as free as practicable from bottom irregularities, debris and wet or muddy conditions that could adversely affect an equipment operator's ability to control the equipment.
- (E) Operating speeds shall be consistent with conditions of roadways, grades, clearances, visibility, traffic and the type of equipment used.
- (F) An equipment operator shall at all times have full control of the mobile equipment while it is in motion.
- (G) Traffic rules, including speed, signals, and warning signs shall be standardized at each mine, and posted as necessary.
- (H) Maintenance. All diesel-powered equipment shall be maintained in a safe and healthful operating condition. The operator shall immediately remove from service any equipment that is in an unsafe or unhealthful condition or is not maintained in accordance with the engine or emissions control operating specifications, and shall not return such equipment to service until all necessary corrective actions have been taken.

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1501:10-2-26

**Underground mine inspector diesel inspection training.**

- (A) The chief shall provide training to his or her staff of underground coal mine inspectors on the use of underground diesel mine equipment so they can conduct diesel inspections as a part of their regular inspection duties.
- (B) The chief shall provide the underground mine inspectors with specific training in the requirements of the rules of this chapter. The chief shall also train and equip the inspectors with the proper equipment necessary to effectively test for diesel emissions, and to properly enforce the rules of this chapter.
- (C) The underground mine inspectors shall be trained in accordance with criteria as established and approved by the chief. Training for inspectors shall include, but is not limited to, the following:
  - (1) Components and operation of a diesel engine;
  - (2) Fuel requirements and effect of various fuels on diesel particulate matter emissions;
  - (3) State and federal diesel regulations;
  - (4) Health effects of diesel particulate matter;
  - (5) Factors that can increase or decrease diesel particulate matter emissions;
  - (6) Emission control techniques in operation, maintenance and testing;
  - (7) Diagnostic testing, including instruments used and evaluation of tests, both in the classroom and hands-on in the field;
  - (8) Inspection and enforcement;
  - (9) Ventilation;
  - (10) Operation, testing and maintenance of fire suppression systems;
  - (11) Emergency procedures including firefighting and containment of spills;



(12) Fuel handling and storage; and

(13) Training plans, training requirements, and record keeping.

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