



4520.43-P

DEPARTMENT OF LABOR

Mine Safety and Health Administration

30 CFR Parts 56 and 57

[Docket No. MSHA-2019-0007]

RIN 1219-AB88

Electronic Detonators

AGENCY: Mine Safety and Health Administration, Labor.

ACTION: Proposed rule; request for comments.

SUMMARY: The Mine Safety and Health Administration (MSHA) is proposing to revise certain safety standards for explosives at metal and nonmetal (MNM) mines. This proposed rule updates existing provisions consistent with technological advancements involving electronic detonators. Elsewhere in this issue of the Federal Register, MSHA is also publishing a direct final rule because the Agency expects that there will be no significant adverse comments on the rule. If no significant adverse comments are received, the Agency will confirm the effective date of the final rule. If a significant adverse comment is received, MSHA will withdraw the direct final rule and proceed with this proposed rule. MSHA intends to

publish a Federal Register notice announcing the Agency's action. This proposed rule and the companion direct final rule are substantially identical.

DATES: Comments must be received or postmarked by midnight Eastern Standard Time on [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: Submit comments and informational materials, identified by RIN 1219-AB88 or Docket No. MSHA-2019-0007, by one of the following methods listed below:

- *Federal E-Rulemaking Portal:* <http://www.regulations.gov>.
Follow the on-line instructions for submitting comments.
- *Email:* zzMSHA-comments@dol.gov.
- *Mail:* MSHA, Office of Standards, Regulations, and Variances, 201 12th Street South, Suite 4E401, Arlington, Virginia 22202-5452.
- *Hand Delivery or Courier:* 201 12th Street South, Suite 4E401, Arlington, Virginia, between 9:00 a.m. and 5:00 p.m. Monday through Friday, except Federal holidays. Sign in at the receptionist's desk on the 4th floor East, Suite 4E401.
- *Fax:* 202-693-9441.

Instructions: All submissions for the direct final rule must include RIN 1219-AB88 or Docket No. MSHA-2019-0007. MSHA

posts all comments without change, including any personal information provided. Access comments electronically on <http://www.regulations.gov> and on MSHA's Web site at <https://www.msha.gov/regulations/rulemaking>.

Docket: For access to the docket to read comments received, go to <http://www.regulations.gov> or <http://www.msha.gov/currentcomments.asp>. To read background documents, go to <http://www.regulations.gov>. Review comments in person at the Office of Standards, Regulations, and Variances, 201 12th Street South, Suite 4E401, Arlington, Virginia 22202-5452. Sign in at the receptionist's desk on the 4th floor East, Suite 4E401.

Email Notification: To subscribe to receive email notification when MSHA publishes rulemaking documents in the Federal Register, go to <https://public.govdelivery.com/accounts/USDOL/subscriber/new>.

FOR FURTHER INFORMATION CONTACT: Sheila A. McConnell, Director, Office of Standards, Regulations, and Variances, MSHA, at mcconnell.sheila.a@dol.gov (email), 202-693-9440 (voice); or 202-693-9441 (facsimile). These are not toll-free numbers.

SUPPLEMENTARY INFORMATION:

I. Direct Final Rule

Concurrent with this proposed rule, MSHA is publishing a separate, substantially identical direct final rule in the Final Rules section of this Federal Register edition. The concurrent publication of these documents will speed notice and comment rulemaking under 30 U.S.C. 811 and the Administrative Procedure Act (see 5 U.S.C. 553) should the Agency decide to withdraw the direct final rule. All interested parties who wish to comment should comment at this time because MSHA does not anticipate initiating an additional comment period.

MSHA has determined that notice and public comment are unnecessary because the rule imposes no new requirements; it simply clarifies the application of MSHA's existing standards to technologies developed after the standards were promulgated. If MSHA does not receive significant adverse comments on or before [INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER], the Agency will publish notification in the Federal Register no later than [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER], confirming the effective date of the direct final rule.

In the event the direct final rule is withdrawn because of significant adverse comments, the Agency will proceed with this proposed rulemaking by addressing the comments received and publishing a final rule. The comment period for this proposed rule runs concurrently with that of the direct final rule. Any comments received under this proposed rule will be treated as comments regarding the direct final rule. Likewise, significant adverse comments submitted to the direct final rule will be considered as comments to this proposed rule. The Agency will consider such comments in developing a subsequent final rule.

II. Background

A. General Discussion

A detonator is a device containing a detonating charge that is used to initiate an explosion reliably, at a specified time, and, as applicable, in a prescribed sequence. There are three types of detonators primarily used in blasting operations in MNM mines. These are non-electric, electric, and electronic detonators. A non-electric detonator is designed to initiate explosions without the use of electric wires. A non-electric detonator includes devices that use detonating cords, shock-tube systems or safety fuse detonators, or a combination of these. An electric detonator uses electrical currents to initiate detonation. Electrical currents from the detonator's lead wires or connectors ignite an electric match which in turn ignites a

pyrotechnic delay element that initiates the base charge. The pyrotechnic delay element burns at an approximated rate. The length and composition of the pyrotechnic delay element control the approximate rate of burn and thus the timing. Since the approximate rate of burn is subject to variation, the timing accuracy of electric detonators is affected. Electric detonator systems typically include a blasting machine that delivers the electrical current to the detonator. Circuit testers, such as a blaster's galvanometer, are used to check the continuity and resistance of the individual detonator and the entire electric circuit. ¹

In contrast to electric detonators, electronic detonator systems do not have a pyrotechnic delay element. Electronic detonator systems are designed to use electronic components to transmit a firing signal with validated commands and secure communications to each detonator, and a detonator cannot be initiated by other means.

Typically, each detonator has a microchip to control sequence timing and an integrated circuit chip and a capacitor, internal to each detonator, to control the initiation time. Electronic detonators enable exact time delays between blasts to ensure the blast energy is used to break rock, reducing fugitive energy loss in the form of vibrations.

¹MSHA considers detonators fired by a shock tube and incorporating a pre-programmed microchip delay rather than a pyrotechnic one to be electric detonators, not electronic detonators.

Unlike non-electric and electric systems, electronic detonators are uniquely designed by each manufacturer, which requires that these devices be used according to manufacturers' instructions. Because these electronic detonator systems require password log-ins, operators must authorize persons to initiate the detonations, which minimizes the potential for accidental misuse.

Based on MSHA's experience with the electronic detonator systems it has reviewed,² the Agency has found that electronic detonator systems have a number of advantages compared to non-electric and electric systems, including greater operator control to limit their use to authorized personnel, more precise timing, reduced vibrations, and a reduced sensitivity to stray electrical currents and radio frequencies.

B. Rulemaking Background

MSHA's existing standards in 30 CFR parts 56 and 57, Subpart E, focus on hazards associated with transporting, maintaining, using, or working near explosive materials, including detonators.

Since 1979, MSHA standards have defined detonators to mean any device containing a detonating charge that is used to

²See <https://arlweb.msha.gov/TECHSUPP/ACC/lists/00elecdet.pdf>

initiate an explosive such as electric blasting caps and non-electrical instantaneous or delay blasting caps. At the time these standards were issued, MSHA believed that the definition provided for the automatic inclusion of new detonators as they developed. *Metal and Nonmetal Mine Safety; New and Revised Definitions and Safety and Health Standards for Explosives*, 44 FR 48535, 48538 (August 17, 1979).

On January 18, 1991, MSHA revised the definition of detonators in §§ 56.6000 and 57.6000 (56 FR 2072) to clarify that the definition does not include detonating cords and that the detonators may be either "Class A" (explosives that include devices that constitute a maximum shipping hazard) or "Class C" (explosive devices that may contain Class A explosives, but in restricted quantities) as classified by the Department of Transportation (DOT) in 49 CFR 173.53 and 173.100.³

³As MSHA was in the process of publishing this 1991 rule, DOT revised its classification requirement at 49 CFR 173.50 and 173.53 (55 FR 52619) consistent with the United Nations Recommendations on the Transport of Dangerous Goods, issued December 21, 1990. Under DOT's revisions, Class A explosives were reclassified as "Division 1.1 and Division 1.2" to mean explosives that have a mass explosion hazard (explosion would affect the entire load instantaneously) or projection hazard (explosion would result in projection of fragments). Class C explosives were reclassified as "Division 1.4" to mean explosives that have a minor explosion hazard (explosive effects are confined to the packaging). These revised definitions form the current classification system recognized for shipping and packaging explosives in the U.S.

Since MSHA published these rules, advancements in computer and micro-processing technology have led to electronic timing of detonations. On September 28, 2004, MSHA issued Program Information Bulletin (PIB) No. P04-20, Electronic Detonators and Requirements for Shunting and Circuit Testing, to respond to stakeholder inquiries concerning how to apply the MSHA requirements for shunting and circuit testing to electronic detonators. In PIB No. P04-20, MSHA reported results of the Agency's evaluation of two electronic detonator systems. MSHA found that the systems contained their own integral elements for shunting and circuit testing, which met the Agency's existing standards for shunting and circuit testing when used as recommended by the manufacturers. Since issuing PIB No. P04-20, MSHA has evaluated several other electronic detonator systems and has determined that these systems also contain their own integral elements for shunting and circuit testing that meet the intended MSHA requirements when these systems are used according to the manufacturers' instructions. Existing MSHA standards require operators to adhere to manufacturers' instructions for all detonation systems, including new systems. See 30 CFR 56.6308 and 57.6308; 56 FR 2072, 2081.

C. Regulatory Review and Reform

On February 28, 2008, the Small Business Administration (SBA) selected MSHA's explosives standards for regulatory review pursuant to its Small Business Regulatory Review and Reform Initiative⁴ which was designed to identify existing federal rules that small business stakeholders believe should be reviewed and reformed. The MSHA reform nomination, discussed in the SBA's February 2008 report, stated that MSHA should update its existing explosive standards to be consistent with modern mining industry standards. The report further noted industry concerns that MSHA's existing standards do not address fundamental aspects of explosive safety, such as electronic detonation. On July 30, 2008, SBA also testified before the House Subcommittee on Regulations, Healthcare, and Trade that SBA's Office of Advocacy had met with nominated agencies to discuss the importance of reviewing and reforming the identified rules.⁵

In 2018, the Agency announced its intent to review existing regulations to assess compliance costs and reduce regulatory burden. As part of this review, MSHA sought stakeholders'

⁴ SBA, Office of Advocacy, Report on the Regulatory Flexibility Act, FY 2007; Annual Report of the Chief Counsel for Advocacy on Implementation of the Regulatory Flexibility Act and Executive Order 13272, February 2008.

⁵ Testimony of the Honorable Thomas M. Sullivan Chief, Counsel for Advocacy U.S. Small Business Administration, U.S. House of Representatives, Committee on Small Business, Subcommittee on Regulations, Health Care, and Trade, July 30, 2008.

assistance in identifying those regulations that could be repealed, replaced, or modified without reducing miners' safety or health. MSHA published on its website, <https://www.msha.gov/provide-or-view-comments-msha-regulations-repeal-replace-or-modify>, a notice that the Agency is seeking assistance in identifying regulations for review. All comments are posted on the Agency's website.

As a result of this solicitation, MSHA received comments from the Institute of Makers of Explosives (IME) requesting that MSHA modernize its standards to "properly address" electronic detonators. IME noted that electronic detonators have been used by the industry for over two decades and provide a "sophisticated level of safety and security," and recommended several regulatory modifications to both coal and MNM standards. Specifically, IME proposed changes to §§ 56.6000 and 57.6000, the definition of "Detonator;" 56.6310, Misfire waiting period; 57.6407, Circuit testing; 57.6604, Precautions during storms; 75.1310, Explosives and blasting equipment; and 77.1303, Explosives, handling and use.

For this proposed rulemaking, MSHA addresses the use of electronic detonators in MNM surface and underground mines and modifies §§ 56.6000 and 57.6000, the definition of "Detonator;"

56.6310 and 57.6310, Misfire waiting period; 56.6407 and 57.6407, Circuit testing; and 57.6604, Precautions during storms. MSHA is amending certain portions of the explosives standards to include electronic detonators. However, the other explosives standards in Subparts E in 30 CFR parts 56 and 57 continue to apply to electronic detonators.

For those electronic detonator systems that the Agency has reviewed, MSHA agrees with IME that electronic detonators provide a working environment that is as safe or safer for miners compared to non-electric and electric detonators because they provide for greater control of a blast.⁶ MSHA believes that recognizing electronic detonator systems as distinct from electric detonators will eliminate confusion over certain regulatory requirements. For example, §§ 56.6401 and 57.6401 and §§ 56.6407 and 57.6407 require that electric detonators be shunted and tested to provide protection against premature detonation caused by extraneous current flowing through portions of the circuit as they are prepared. Operators use a galvanometer or other

⁶See Program Information Bulletin NO. P04-20, Electronic Detonators and Requirements for Shunting and Circuit Testing. In addition, the U.S. Department of the Interior's Office of Surface Mining Reclamation and Enforcement (OSMRE) published a study in 2013 that concluded that electronic detonators are more accurate and precise than the non-electric systems. (Field Testing and Analysis of Blasts Utilizing Short Delays with Electronic Detonators (Lusk, Silva, and Eltschlager (September 2013))).

instrument to test electric circuits to determine whether an individual series circuit is continuous, to locate broken wires and connections, and to avoid introducing excessive current to the circuit. 56 FR 2082-83.

However, the electronic detonator systems that MSHA has reviewed contain their own integral elements for shunting and circuit testing that exceed the safety protections in MSHA's requirements when the systems are used according to the manufacturer's instructions. These systems, typically, are designed with an integrated circuit and a capacitor system internally wired to each electronic detonator, which isolates the base charge from the wires leading to the internal capacitors and microchip, making shunting unnecessary.

In addition, based on MSHA's experience, the Agency has found that electronic detonator systems inherently provide more protection than MSHA's shunting and circuit testing standards do for electric detonators because electronic detonator systems communicate digitally to each detonator and are designed to prevent interference from stray currents and other electromagnetic interference. Additionally, electronic detonators are less likely to be misused because they cannot be

fired simply by a battery or by other routine electric sources.

III. Section-by-Section Analysis

A. Sections 56.6000 and 57.6000 - Definitions

Under proposed §§ 56.6000 and 57.6000, the definition for *Detonator* would be modified by adding the words "electronic detonators," before the word "electric" in the second sentence of the paragraph. Also, in proposed § 56.6000 a comma would be added after the word "caps" in the second sentence.

The proposed change to §§ 56.6000 and 57.6000, *Detonator*, would modernize the definition by including electronic detonators. The proposed addition of a comma in § 56.6000 is for clarity and would conform with the definition of *Detonator* in § 57.6000.

B. Sections 56.6310 and 57.6310 - Misfire waiting period

Sections 56.6310 and 57.6310 require that in the event of a misfire while blasting, personnel should wait a specific time period based on the type of detonator being used before entering the blast area for safety.

Under proposed §§ 56.6310 and 57.6310, a new paragraph (c) would be added that would require a 30 minute waiting period, or for the manufacturer-recommended time, whichever is longer, in the event of a misfire while blasting with an electronic detonator.

MSHA believes that waiting at least 30 minutes before entering a blast area if electronic detonators are involved in a misfire provides personnel an adequate amount of time to analyze the

circumstances of the misfire and to develop a plan of action to safely enter the blast area. In MSHA's experience, this waiting period is consistent with industry-recommended standards.⁷ In the event that an electronic detonator manufacturer recommends more than a 30-minute waiting period if

⁷Institute of Makers of Explosives, Safety Library Publication No. 4, Warnings and Instructions for Consumers in Transporting, Storing, Handling, and Using Explosive Materials (October 2016).

a misfire occurs using its electronic detonators, MSHA proposes to require that persons must follow the manufacturer's recommended wait time before entering the blast area. This is consistent with §§ 56.6308 and 57.6308, requiring persons to follow manufacturer's instructions for using detonation systems.

C. Sections 56.6407 and 57.6407 - Circuit testing

Sections 56.6407 and 57.6407 require that blasting circuits be tested to ensure the circuits are properly wired. Under proposed § 56.6407(a) and (c), the words "or electronic" would be added to paragraphs (a) and (c). In addition, under proposed § 57.6407(a)(3) and (b)(2), the words "or electronic" would be added to paragraphs (a)(3) and (b)(2).

A blasting galvanometer is used to test electric detonator circuits to prevent misfires by determining whether an individual series circuit is continuous and by locating broken wires and connections. A blasting galvanometer or other appropriate type of testing equipment is used to avoid introducing excessive current into the circuit. This differs from the electronic detonator systems the Agency has reviewed because these systems have a means for circuit testing incorporated into their designs. The Agency anticipates that other electronic detonator systems MSHA has not reviewed also have integral circuit testing mechanisms. While revising the

standard would clarify that the circuit-testing requirement applies to electronic detonator systems, the Agency believes that most or all electronic detonator systems already comply with this safety standard. The proposed changes are not intended to require that electronic detonator systems with integral circuit testing be tested additionally with a galvanometer or other outside mechanism.

D. Section 57.6604(b) - Precautions during storms

Under § 57.6604, underground electrical blasting operations must be suspended during the approach and progress of an electrical storm. Electromagnetic fields and stray currents can be generated from lightning. Higher energy levels of electromagnetic interference and stray current are generally disruptive or damaging to electronic equipment. Based on MSHA's experience with the electronic detonators it has examined, electronic detonator systems and technologies generally have the base charge isolated from the wires leading to the internal capacitors and microchip providing built-in protection from interference from electromagnetic fields and stray current. However, MSHA is aware that an electromagnetic pulse such as lightning strikes traveling through underground mines by paths such as air lines, water lines, and conductive ore bodies, can damage all types of detonators and equipment and cause misfires. Therefore, under proposed § 57.6604(b), the words "electronic

or” would be added after the word “Underground.”

The Agency believes that most or all electronic detonator systems are designed to minimize or eliminate the possibility that lightning could initiate a blast; many systems may not be capable of being initiated by lightning. In addition, to the extent these systems are capable of being initiated by lightning, MSHA believes that operators already have been applying these requirements to electronic detonator systems through manufacturers’ directions and accepted industry practices. MSHA believes the proposed revision will have little or no actual impact on operators’ existing practices and simply eliminates ambiguity in the requirements under § 57.6604(b).

III. Regulatory Economic Analysis

Executive Orders (E.O.) 12866 and 13563

Executive Orders 12866 and 13563 direct agencies to assess all costs and benefits of available regulatory alternatives and, if regulation is necessary, to select regulatory approaches that maximize net benefits (including potential economic, environmental, public health and safety effects, distributive impacts, and equity). Executive Order 13563 emphasizes the importance of quantifying both costs and benefits, of reducing costs, of harmonizing rules, and of promoting flexibility.

Pursuant to the Congressional Review Act (5 U.S.C. 801 et seq.), the Office of Information and Regulatory Affairs

testing” standard now makes clear that the standard contemplates electronic detonating systems as well as electric detonators, the preamble clarifies that most or all of these electronic systems inherently comply and that, therefore, the specific actions operators must take when using electric detonators generally need not be taken for electronic detonating systems. Likewise, while this proposed rulemaking does not directly address MSHA’s shunting standards, the preamble clarifies that, while those standards require operators to take specific actions when using electric detonators, they are not applicable to inherently compliant electronic detonating systems. Through these clarifications, MSHA would ensure the safety advantages offered by the use of electronic detonators are available to mine operators, including greater operator control to limit use to authorized personnel, more precise timing, reduced vibrations, and a reduced sensitivity to stray electrical currents and radio frequencies. Furthermore, consistent with the directive in E.O. 13777, this proposed rule would update outdated regulations and accommodate technological advances.

Under E.O. 12866, a significant regulatory action is one meeting any of a number of specified conditions, including the following: having an annual effect on the economy of \$100

million or more, creating a serious inconsistency or interfering with an action of another agency, materially altering the budgetary impact of entitlements or the rights of entitlement recipients, or raising novel legal or policy issues. MSHA has determined that the proposed rule is "other significant" under E.O. 12866.

IV. Feasibility

MSHA has concluded that the requirements of the proposed rule would be both technologically and economically feasible because the proposed requirements are already generally accepted industry practices for the use of electronic detonators.

V. Regulatory Flexibility Act and Small Business Regulatory Enforcement Fairness Act

Pursuant to the Regulatory Flexibility Act (RFA) of 1980, as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA), MSHA has analyzed the compliance cost impact of the proposed rule on small entities. Based on that analysis, MSHA certifies that the proposed rule would not have a significant economic impact on a substantial number of small entities because it does not impose any new costs. Therefore, the Agency is not required to develop an initial regulatory flexibility analysis.

VI. Paperwork Reduction Act of 1995

The Paperwork Reduction Act (PRA) provides for the Federal government's collection, use, and dissemination of information. The goals of the PRA include minimizing paperwork and reporting burdens and ensuring the maximum possible utility from the information that is collected (44 U.S.C. 3501). There are no information collections associated with this proposed rule.

VII. Other Regulatory Considerations

A. The Unfunded Mandates Reform Act Of 1995

MSHA has reviewed the proposed rule under the Unfunded Mandates Reform Act of 1995 (2 U.S.C. 1501 et seq.). MSHA has determined that this proposed rule does not include any federal mandate that may result in increased expenditures by State, local, or tribal governments; nor would it increase private sector expenditures by more than \$100 million (adjusted for inflation) in any one year or significantly or uniquely affect small governments. Accordingly, the Unfunded Mandates Reform Act of 1995 requires no further Agency action or analysis. Since the proposed rule does not cost over \$100 million in any one year, the proposed rule is not a major rule under the Unfunded Mandates Reform Act of 1995.

B. Executive Order 13132: Federalism

The proposed rule does not have "federalism implications" because it would not "have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government." Accordingly, under E.O. 13132, no further Agency action or analysis is required.

C. Executive Order 12630: Government Actions and Interference with Constitutionally Protected Property Rights

The proposed rule does not implement a policy with takings implications. Accordingly, under E.O. 12630, no further Agency action or analysis is required.

D. Executive Order 12988: Civil Justice Reform

The proposed rule was written to provide a clear legal standard for affected conduct and was carefully reviewed to eliminate drafting errors and ambiguities, so as to minimize litigation and undue burden on the Federal court system. Accordingly, the proposed rule meets the applicable standards provided in section 3 of E.O. 12988, Civil Justice Reform.

E. Executive Order 13175: Consultation and Coordination with Indian Tribal Governments

This proposed rule does not have "tribal implications" because it would not "have substantial direct effects on one or

more Indian tribes, on the relationship between the Federal government and Indian tribes, or on the distribution of power and responsibilities between the Federal government and Indian tribes." Accordingly, under E.O. 13175, no further Agency action or analysis is required.

F. Executive Order 13211: Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use

Executive Order 13211 requires agencies to publish a statement of energy effects when a rule has a significant energy action that adversely affects energy supply, distribution or use. MSHA has reviewed this proposed rule for its energy effects because the proposed rule applies to the metal and nonmetal mining sector. MSHA has concluded that it is not a significant energy action because it is not likely to have a significant adverse effect on the supply, distribution, or use of energy. Accordingly, under this analysis, no further Agency action or analysis is required.

G. Executive Order 13272: Proper Consideration of Small Entities in Agency Rulemaking

MSHA has thoroughly reviewed the proposed rule to assess and take appropriate account of its potential impact on small businesses, small governmental jurisdictions, and small

organizations. MSHA has determined and certified that the proposed rule does not have a significant economic impact on a substantial number of small entities.

List of Subjects

30 CFR Part 56

Chemicals, Electric power, Explosives, Fire prevention, Hazardous substances, Metals, Mine safety and health.

30 CFR Part 57

Chemicals, Electric power, Explosives, Fire prevention, Hazardous substances, Metals, Mine safety and health.

For the reasons set out in the preamble, and under the authority of the Federal Mine Safety and Health Act of 1977, as amended by the Mine Improvement and New Emergency Response Act of 2006, MSHA proposes to amend chapter I of title 30 of the Code of Federal Regulations as follows:

PART 56 Safety and Health Standards Surface Metal and Nonmetal Mines

1. The authority citation for part 56 continues to read as follows:

Authority: 30 U.S.C. 811.

2. In § 56.6000, revise the definition for "Detonator" to read as follows:

§ 56.6000 Definitions.

Detonator. Any device containing a detonating charge used to initiate an explosive. These devices include electronic detonators, electric or nonelectric instantaneous or delay blasting caps, and delay connectors. The term "detonator" does not include detonating cord. Detonators may be either "Class A" detonators or "Class C" detonators, as classified by the Department of Transportation in 49 CFR 173.53 and 173.100 which is available at any MSHA Metal and Nonmetal Safety and Health district office.

3. Amend § 56.6310 by:
 - a. Revising paragraphs (a) and (b); and
 - b. Adding paragraph (c).

The revisions and addition read as follows:

§ 56.6310 Misfire waiting period.

- (a) For 30 minutes if safety fuse and blasting caps are used;
- (b) For 15 minutes if any other type detonators are used; or
- (c) For 30 minutes if electronic detonators are used, or for the manufacturer-recommended time, whichever is longer.

§ 56.6407 [Amended]

4. In § 56.6407 amend paragraphs (a) and (c) by adding the words "or electronic" after the word "electric".

Part 57 Safety and Health Standards Underground Metal and Nonmetal Mines

5. The authority citation for part 57 continues to read as follows:

Authority: 30 U.S.C. 811

6. In § 57.6000, revise the definition for "Detonator" to read as follows:

§ 57.6000 Definitions.

Detonator. Any device containing a detonating charge used to initiate an explosive. These devices include electronic detonators, electric or nonelectric instantaneous or delay blasting caps, and delay connectors. The term "detonator" does not include detonating cord. Detonators may be either "Class A" detonators or "Class C" detonators, as classified by the Department of Transportation in 49 CFR 173.53 and 173.100 which is available at any MSHA Metal and Nonmetal Safety and Health district office.

7. Amend § 57.6310 by

- a. Revising paragraphs (a) and (b); and
- b. Adding paragraph (c).

The revisions and addition read as follows:

§ 57.6310 Misfire waiting period.

- (a) For 30 minutes if safety fuse and blasting caps are used;
- (b) For 15 minutes if any other type detonators are used; or
- (c) For 30 minutes if electronic detonators are used, or for the manufacturer-recommended time, whichever is longer.

§ 57.6407 [Amended]

- 8. In § 57.6407 amend paragraphs (a) (3) and (b) (2) by adding the words "or electronic" after the word "electric".

§ 57.6604 [Amended]

- 9. Amend § 57.6604(b) by adding the words "electronic or" after the word "Underground".

David G. Zatezalo,

Assistant Secretary of Labor for

Mine Safety and Health Administration.

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