IME
institute of makers of explosives

The safety and security institute of the commercial explosives industry since 1913

February 13, 2020

Ms. Sheila A. McConnell
Director
Office of Standards, Regulations, and Variances
Mine Safety and Health Administration
201 12th Street, South
Suite 4E401
Arlington, VA 22202-5452

Re: Direct Final Rule and Request for Comments; Docket No. MSHA-2019-0007, Electronic Detonators

Dear Ms. McConnell:

IME respectfully submits the following comments on the above-captioned action.

Interest of IME

IME is a nonprofit association founded in 1913 to provide accurate information and comprehensive recommendations concerning the safety and security of commercial explosive materials. Our mission is to promote safety and the protection of employees, users, the public and the environment; and to encourage the adoption of uniform rules and regulations in the manufacture, transportation, storage, handling, use and disposal of explosive materials used in blasting and other essential operations.

IME represents U.S. manufacturers and distributors of commercial explosive materials and oxidizers as well as other companies that provide related services. Over 2.5 million metric tons of high explosives, blasting agents, and oxidizers are consumed annually in the U.S. Of this, IME member companies produce over 98 percent of the high explosives and a great majority of the blasting agents and oxidizers. These products are used in every state and are distributed worldwide.

General Comments

IME supports MSHA's Direct Final Rule ("DFR") and agrees with the agency that the rule imposes no new regulatory requirements, but simply clarifies the applicability of MSHA's existing standards to electronic blast initiation systems ("electronic detonators"), a technology developed subsequent to the promulgation of the current rules. As suggested in the preamble to the DFR, electronic detonators have been recognized by MSHA as a viable, safe and secure technology for many years via the agency's issuance of Program Information Bulletin ("PIB") No. P-04-20 (2004). The applicability of certain MSHA regulations to electronic detonators is

explained in PIB No. P-04-20 and, given the longstanding and expanding use of the systems, it is now appropriate to amend those regulations to incorporate the clarification provided by the PIB.

Specific Comments

Detonators Equipped with a Pre-Programmed Microchip Delay and Fired by Shock Tube

In Section II.A, Footnote 1 of the DFR preamble, the agency explains that;

> MSHA 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. [Emphasis added][1]

We support MSHA's determination that the shock tube initiated detonators described above should not be considered electronic detonators as they are not initiated using a digital command code but, rather, by conventional non-electric means. That said, the footnote contains a typographical error that must be corrected to avoid confusion and misapplication of the rule. Specifically, the term "electric detonators" should be "non-electric detonators."

If not corrected, such shock tube fired detonators would be subject to the misfire waiting periods (30 CFR 56.6301), shunting (30 CFR 56.6401), and circuit testing (30 CFR 56.6407) requirements applicable to electric detonators.[2] As MSHA knows, the waiting period for a misfire of electric detonators is 15 minutes, whereas the proposed waiting period for electronic systems is 30 minutes or longer depending on the manufacturer's recommendations. Moreover, a shock tube initiated pre-programmed microchip delay has no method or need to provide a shunt, nor a method to provide "circuit testing" as the initiating signal is non-conductive. Compliance with these rules would, therefore, be an impossibility.

We believe that this oversight can be easily and swiftly rectified by the issuance of a technical correction and should not adversely affect the viability of the DFR.

Wireless Electronic Detonators

IME is also satisfied that the clarifying language provided by MSHA in section 56.6407 and Section 57.6407 of the rule accommodates the use of wireless electronic detonator technology and will not deter the further development and use of such systems.[3] Wireless detonator technology is substantially similar to other electronic detonating systems and offers the same safety and security benefits provided by such systems. Wireless systems, however, do not employ an electrical lead wire.

Because wireless electronic detonating systems do not use "blasting lines" to verify continuity, these subsections are inapplicable and will not, therefore, operate to inhibit the use of wireless systems. Specifically, the "circuit test" in wireless electronic blasting is confirmed by transmitting an inert data packet to a recorder which has been placed into the blast hole(s). An

[1] 85 Fed. Reg. 2023 (Jan. 14, 2020).
[2] Similar requirements are imposed in corresponding sections of 30 CFR Part 57.
[3] 85 Fed. Reg. 2027 (Jan. 14, 2020). In Section 56.6407(a) and (c), the words "or electronic" are added, and under § 57.6407(a)(3) and (b)(2), the words "or electronic" are added.

inert data packet is transmitted through the rock to the recorder and raw signal data is captured on the recorder. The measurements are retrieved from recorders for each test transmission and assessed for signal strength before wireless primers are loaded into the holes. The recorders are modified digital receiver units which capture incoming magneto inductive signals and record the results. While this method does not rely on physical blasting lines, it is an effective means of complying with the safety standards in sections 56.6407 and 57.6407.

Conclusion

IME appreciates the opportunity to submit these comments. Please let me know if there are any questions or if we can provide any additional information.

Respectfully Submitted,

Joshua Hoffman Ph.D., P.E.
Director of Technical Services