From: David Clardy <David.Clardy@matrixteam.com>
Sent: Monday, December 21, 2020 2:36 PM
To: zzMSHA-Standards - Comments to Fed Reg Group <zzMSHA-COMMENTS@DOL.GOV>
Subject: RIN 1219-AB93 Comments of Matrix Design Group Regarding MSHA Proposed Revisions to Testing, Evaluation, and Approval of Electric Motor-Driven Mine Equipment

Dear Ms. Fontaine,

We thank MSHA for its willingness to advance the proposed rule. Please find attached our comments.

Kind Regards,

David Clardy, President
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1219-AB93-Comm-18

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December 21, 2020

Roslyn B. Fontaine
Deputy Director, Office of Standards, Regulations, and Variances
Mine Safety and Health Administration
201 12th Street South, Suite 4E401
Arlington, Virginia 22202-5452

RE: Comments of Matrix Design Group, LLC Regarding MSHA's Proposed Revisions to Testing, Evaluation, and Approval of Electric Motor-Driven Mine Equipment, RIN 1219-AB93

Filed via Email: zzMSHA-comments@dol.gov

Dear Ms. Fontaine:

Matrix Design Group, LLC ("Matrix") is a Mine Safety and Health Administration ("MSHA") approved manufacturer of technological products designed to improve workplace safety in a number of industrial markets, including underground and surface coal mines. Matrix markets products to both the domestic and international mine safety equipment markets and is the clear market share leader in United States underground proximity systems and the technology leader in underground coal proximity worldwide.

As an initial matter, we wish to thank MSHA for its willingness to advance the proposed rule. MSHA's goal of promoting the use of innovative and advanced technologies to better protect our nation's coal miners is certainly laudable and is a goal shared by Matrix. The proposed rule is a welcome first step in ensuring that American coal miners have access to the most advanced health and safety technology possible. Matrix has reviewed the proposed rule, particularly the fourteen voluntary consensus standards ("VCS") proposed by MSHA and has concluded that restrictions on the listed VCS should be removed in order to bring products to market that provide a higher level of safety to coal miners. To that end, Matrix submits the following comments.

The proposed rule appears to accept VCS with levels of protection which only conform to Zone 0 mining environments, as that term is defined by the International Electrotechnical Commission ("IEC") and the American National Standards Institute ("ANSI"). In order to better understand what level of safety is required in each zone, it is important to understand how Zone 0, Zone 1 and Zone 2 mining environments are defined. MSHA touched on the definition of these zones in the proposed rule. However, the rule did not put those definitions into context as they apply to the underground mining environment. Zone 0 is defined as a place in which an explosive atmosphere is ***continuously present***. Zone 1 is defined as a place in which an explosive atmosphere is ***likely*** to occur in normal operation ***occasionally***. Zone 2 is defined a place in which an explosive atmosphere is ***not likely*** to occur in normal operation, but if it does, only occurs for short periods.

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When examined through the lens of these definitions, it is a mischaracterization to describe the underground coal mining environment in the United States as constantly Zone 0 for purposes of product approvals under Part 18. Because of the ventilation requirements designed to control methane, dust, and maintain a respirable atmosphere, there are no mines in the United States which operate "continuously" in a Zone 0 atmosphere. Additionally, MSHA's mandatory standards require a mine to take immediate action when methane reaches certain levels.[1] A more accurate definition of the underground coal mining environment in this country is found in the description for Zone 1, which contemplates the existence of ignitable gases as "likely" to occur "occasionally". There are even some underground coal mines in this country with little to no methane that have mining environments more accurately described as Zone 2. Put simply, international standards currently acknowledge that gassy coal mines will have different atmospheric zones based on numerous geological and environmental factors.

To satisfy MSHA's stated goal of bringing products to market which further mine safety but are currently not available for use in the domestic coal market, Matrix proposes that MSHA broaden its acceptance of the currently listed VCS from strictly "da", "ia", and "ma" approvals, to all levels of protection available in Group 1 electrical equipment. For type of protection "d" for flameproof enclosures, this would include levels of protection "da", "db", and "dc". For type of protection "i" for intrinsic safety, this would include levels of protection "ia", "ib", and "ic". For type of protection "m" for encapsulation, this would include levels of protection "ma", "mb", and "mc".

The proposed rule also discusses three Equipment Protection Levels ("EPLs") and discusses the subdivisions of those EPLs which set forth different levels of protection. Again, MSHA appears to limit the acceptability of those EPLs to those that only operate in Zone 0 atmospheres. Consistent with its previous recommendation, Matrix proposes broadening the acceptance of the VCS to reflect the mining environments in which the products will operate. Namely, for EPL G for explosive gas atmospheres, the levels of protection should be broadened to accept "Ga", "Gb", and "Gc". For EPL D intended for explosive dust atmospheres, that would include "Da", "Db", and "Dc". Finally, for EPL pertaining to explosive atmospheres in mines susceptible to methane, that would include "Ma" and "Mb".

The underlying theory behind Matrix's recommendation is not to arbitrarily broaden the acceptance of products in underground coal mines, but rather to accept the framework of product approvals that is currently in place internationally and has provided workers around the globe with a high level of safety for many years. The linchpin of that acceptance is the recognition by MSHA that the working section of an underground coal mine in this country is not exclusively Zone 0 for purposes of product approvals. MSHA correctly states in the proposed rule that a Zone 0 environment requires the highest levels of protection against fire or explosion. However, that is not to say that equipment approved for use in Zone 1 or Zone 2 environments is unsafe and use of such equipment would provide a greater risk to miners. The safety of the equipment is dependent upon the mining environment in which it operates. By recognizing that fundamental truth, MSHA would align itself with the three standards setting bodies it references in the proposed rule. Calling a working section Zone 0 might provide the most stringent level of protection, but it is above and beyond what the conditions require and thus provides no higher level of safety to miners. As a side effect, products which would provide a higher level of safety to miners are excluded from the market.

[1] 30 C.F.R. § 75.323, *et. seq.*

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Matrix has identified several product groups currently available and in use in international markets, with a proven track record of success, that are not approved for use by American coal miners. Matrix believes the ultimate goal of this rulemaking should be to make product groups like those available for use on "Day One" following the publication of the final rule. Unfortunately, those product groups would still not be approved for use due to the limitations proposed for the fourteen VCS.

Product groups currently in use internationally include machine-mounted sensors intended to increase miner safety through proximity alerting and personal data display/communication devices also intended to increase miner safety through improved communication. Under the restrictions of the proposed rule as currently drafted, neither device group would be able to be used "Day One" by U.S. miners, to increase miner safety, as the sensors are designated "Ex mb I Mb" and the personal data display/communication devices are "Ex ib I Mb". Under the proposed rule, these components would require "Ex ma I Ma" and "Ex ia I Ma" approvals, respectively. Obtaining such an approval is not possible for those products currently in use internationally.

In addition to the broadened VCS, Matrix believes some additional clarity is required with respect to Subpart A of Part 18. To reconcile the use of VCS with the current language in 30 C.F.R. § 18.6(a)(3), Matrix proposing substituting the language in subsection (i) with the following:

> *(i) MSHA will accept applications under part 18 designed and tested to the VCS listed in Subpart F, and accept an approval certificate from accredited, independent IECEx Certification Bodies (ExCBs), within 30 days from the date of receipt by MSHA of the application*

Additionally, Matrix believes additional clarification is required with regard to the process by which MSHA will accept certifications from accredited laboratories. Specifically, the proposed modifications to Section 18.15(c) are unclear with respect to MSHA's willingness to accept certifications from accredited laboratories without further evaluation or testing to the accepted VCS. To provide needed clarification and better streamline the approval process, Matrix would propose the following language for Section 18.15(c)

> *(c) An application for a formal extension of approval or certification must have a list of new or revised drawings, specifications, and information related to the changes to be added to those already on file for the original approval or certification or a certificate from an accredited, independent laboratory. MSHA will issue a formal extension of approval or certification within 30 days from the date of receipt by MSHA of the extension request to a completely assembled electrical machine or accessory, if each component of such electrical machine or accessory:*
>
> *(1) Meets the requirements applied to the last approval, certification, or extension thereof; or*

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(2) Meets voluntary consensus standard requirements listed in this part that apply to those components if the applicant chooses to use the requirements of the voluntary consensus standards."

Thank you in advance for taking time to consider these comments. If I can be of any further assistance in this matter, please do not hesitate to contact me.

Sincerely,

David Clardy
President
Matrix Design Group, LLC