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Please see attached as our Comments of the United Mine Workers of America On the Mine Safety and Health Administration's Limited Reopening Of The Record for the existing rule on Refuge Alternatives "RIN 1219-AB84 December 16, 2013

Thank you,
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**Comments of the United Mine Workers of America
On the Mine Safety and Health Administration's Limited Reopening Of The Record
for the existing rule on Refuge Alternatives "RIN 1219-AB84
December 16, 2013**

The United Mine Workers of America welcome's the opportunity to comment on the Mine Safety and Health Administration's (MSHA) Limited Reopening Of The Record for the existing rule on Refuge Alternatives for the limited purpose of obtaining comments on the frequency for motor task (also known as "hands-on" training), decision-making, and expectations training for miners to deploy and use refuge alternatives in underground coal mines. The U.S. Court of Appeals for the District of Columbia Circuit remanded a training provision in the Refuge Alternatives rule, directing MSHA to explain the basis for requiring motor task (hands-on), decision-making, and expectations training annually rather than quarterly or to reopen the record and allow public comment. MSHA states it will review the comments to determine an appropriate course of action for the Agency in response to those comments.

MSHA chose to address this effort with the following seven (7) questions. The UMWA believes these 7 questions are too narrow and indicate MSHA is predisposed to support the rule, as written. Accordingly, we believe this does not satisfy the court's directive, nevertheless we will respond to each of the questions.

- 1) With what frequency does motor task (hands-on) training need to be conducted to permit miners to develop and maintain the skills necessary to reliably and effectively deploy and use a refuge alternative in an emergency? If you believe that such training on an annual basis is insufficient, describe ways, if any, that quarterly training could be enhanced to allow miners to develop and maintain the necessary motor task skills when provided in conjunction with annual training.

UMWA Comment: The UMWA believes training for refuge alternatives on an annual basis is insufficient and that this training should be provided on a quarterly basis. It is scientifically proven that an employee who receives more frequent hands on training is better able to perform his or her job or task and will retain the information and skills for longer periods of time. Congress acknowledged the importance of more frequent training with the adoption of the MINER Act of 2006. The MINER Act provided additional mine evacuation safety training, increased training on the use of SCSR's, and increased mine rescue team training from the 40-hour annual refresher training requirement to 96 hours. These were all mandated as improvements for miners' safety based on the failures of the then current MSHA requirements. Furthermore, in December 2007, Congress directed the

Secretary to propose regulations, consistent with the recommendations of the NIOSH Report where NIOSH finalized its Research Report on "Refuge Alternatives for Underground Coal Mines" (NIOSH Report) in December 2007. In this report, NIOSH addressed **1) motor task (hands-on) training consists of performing necessary activities associated with deploying and using a refuge alternative and its components;** 2) Decision-making training consists of learning when it is appropriate to use refuge alternatives and 3) Expectations training which consists of anticipating and experiencing the conditions that might be encountered during use of a refuge alternative (e.g., high heat and humidity, confined space). **NIOSH recommended that each of these three types of training be required quarterly.** That represents the best and most direct guidance on these issues. The report drew from NIOSH experience, independent research and testing, and a survey of existing research related to mine refuge chambers. NIOSH and others that were surveyed during their research, understood that more frequent hands-on training would build miners' confidence, giving them a stronger understanding of the responsibilities of their task as well as what is required from them in the event they need to escape a mine or barricade.

The National Research Council (NRC) of the National Academies of Science released a report in 2013 titled "Improving SELF-ESCAPE From Underground Coal Mines." This publication also recognized that many improvements need to be addressed with our nation's miners when it comes to improving their skills on self-escape. The use of Refuge Alternatives plays an important part for miners during mine emergencies. The NRC publication points out that, with a few exceptions, most escape training programs in the industry are poorly designed, and many seem to be oriented primarily toward minimal compliance with federal and state training regulations. The report revealed that in training, miners seldom have to demonstrate a mastery of a skill, but only have to be in attendance.

The NRC report recommended ensuring that miners can function effectively in an emergency: a train-to-mastery system with competency standards is needed for every miner to be successful in the event of an emergency. This type of training already takes place in many occupations including our armed services (Army, Navy, Air Force, Marines), NASA, fire fighters, law enforcement, and miners employed in Australia. This type of training plays an important part when miners are faced with having to deploy refuge alternatives for the purpose of barricading.

We are sadly reminded that the miners of Sago had to barricade and thought they had done everything they were taught on barricading only to have those teachings fail them. Looking at the failures of our past history and recognizing how training takes place within other occupations. The UMWA strongly urges the agency to adopt the same approaches with frequent repeated trainings.

In other words, we urge the Agency to consider also incorporating a train-to-mastery system with competency standards. The UMWA contends that the motor task training for refuge alternatives must be conducted for every miner on a quarterly basis with a focused approach to hands on training by deploying and activating a training model and having miners show that they are comfortable and confident in operating the units. Recognizing that

every miner will not be able to be perfect when being tested, just as some miners are better equipment operators while others are better at support work and so on, this can be accomplished by allowing miners the time necessary so each miner can reach his or her individual goal of proficiency.

2) With what frequency does expectations training need to be conducted to give miners the experience necessary to reduce the level of panic and anxiety that otherwise may accompany the deployment and use of a refuge alternative in an emergency?

UMWA Comment: As mentioned in comment 1, in December 2007, Congress directed the Secretary to propose regulations, consistent with the recommendations of the NIOSH Report where NIOSH finalized its Research Report on "Refuge Alternatives for Underground Coal Mines" (NIOSH Report) in December 2007. In this report, NIOSH addressed 1) motor task (hands-on) training which consists of performing necessary activities associated with deploying and using a refuge alternative and its components; 2) Decision-making training which consists of learning when it is appropriate to use refuge alternatives, and 3) Expectations training which consists of anticipating and experiencing the conditions that might be encountered during use of a refuge alternative (e.g., high heat and humidity, confined space). NIOSH recommended that each of these three types of training be required quarterly. The report drew from NIOSH experience, independent research and testing, and a survey of existing research related to mine refuge chambers. NIOSH and others that were surveyed during their research, understood that more frequent training is necessary in expectation's training to give miners the experience necessary to reduce the level of panic and anxiety that otherwise may accompany the deployment and use of a refuge alternative in an emergency.

We learned this lesson the hard way during our findings in the investigations of Sago, Alma, and Aracoma and problems with miners' efforts to use their SCSR's. In fact, many miners were unable to don their SCSR's in those emergency settings: even though they were trained annually on this skill, annual training proved to be inadequate. It would be fair to acknowledge that the task of donning an SCSR is not nearly as difficult as deploying a refuge chamber. Looking at the lessons learned from past failed SCSR training, and if the Agency and the Industry truly want to prepare miners in the event an emergency occurs, then there is no question that the training must be more frequent than annually. After the 2006 disasters, everyone in the mining community realized there was a need to put more emphasis on expectations training with SCSR's because investigations revealed that miners didn't know what to expect when having to don them. No one can prepare miners for every scenario they may face during an emergency but it is important to expose miners to as many different scenarios as possible in the event of an emergency.

Each miner will react differently to the unexpected based on their experience, personality, and their physical and mental makeup.

Mine Emergency Response Disasters (MERD) exercises can play a key role in preparing for mine emergencies. If mine operators were required to conduct MERD'S, they could see how different miners behave under different circumstances.

The National Research Council (NRC) of the National Academies of Science released a report in 2013 titled "Improving SELF-ESCAPE From Underground Coal Mines" which also addressed this topic. These experts determined that at least annually and in conjunction with one of the required quarterly escapeway drills, mine operators should conduct a comprehensive self-escape scenario exercise at every underground mine. These exercises should be an integrative practice incorporating the roles of miners, the responsible person as defined in 30 Code of Federal Regulations § 75.1501, the mine communications center, and any other stakeholders that the operator deems pertinent to a successful self-escape. The scenario should test all aspects of the mine's emergency response plan including the possibility of having to use a refuge alternative. Information gathered from these proposed exercises will speak to the effectiveness of miners being prepared during an emergency.

The UMWA submits that by increasing the motor task (hands-on) training on a quarterly basis, and at least one of during the quarterly sessions with a required escapeway drill, conducting a MERD, will give miners the added knowledge and confidence necessary to reduce the level of panic and anxiety that otherwise may accompany them during the deployment and use of a refuge alternative.

3) With what frequency does decision making training need to be conducted so that, in an emergency, miners understand that the refuge alternative is a last resort when escape from the mine is impossible?

UMWA Comment: As mentioned in comments 1 and 2, in December 2007, Congress directed the Secretary to propose regulations, consistent with the recommendations of the NIOSH Report where NIOSH finalized its Research Report on "Refuge Alternatives for Underground Coal Mines" (NIOSH Report) in December 2007. In this report, NIOSH addressed 1) motor task (hands-on) training which consists of performing necessary activities associated with deploying and using a refuge alternative and its components; **2) Decision-making training consists of learning when it is appropriate to use refuge alternatives;** and 3) Expectations training which consists of anticipating and experiencing the conditions that might be encountered during use of a refuge alternative (e.g., high heat and humidity, confined space). NIOSH recommended that each of these three types of training be required quarterly. The report drew from NIOSH experience, independent research and testing, and a survey of existing research related to mine refuge chambers. There is also a growing number of studies that suggest that decision making skills necessary for miners to cope with emergency situations are rarely addressed in the current miner training. All one has to do is "google" "decision making skills training for mining" and literally dozens of reports will appear that support a basic need for improvement in this area. If the objective of the mining community is to truly provide miners with the best resources and training needed in an emergency, then MSHA must

make sure that operators are providing it. That gives reason as to why it must be required or it will not happen for most miners. Miners today are given little opportunity to engage in problem solving and decision making related to escape or barricading in the event of an emergency. Usually escape training is presented in the form of simple rules like instructions on how to don your SCSR, location of caches of SCSR's and refuge chambers, explanation of lifelines, location of escapeways, how to proceed to your escapeway, etc., but in reality during an actual emergency, many situations will arise to prevent miners from applying these simple rules. Again, the Sago mine disaster was a perfect example of this. Since that time, the mining community has done very little to enhance decision making skills training. Part of the training could very easily be done on a daily basis during work hours while miners are performing their assigned duties. Asking simple questions of miners during their normal work hours, quizzing them, making them think on how to respond during different emergency scenarios are just a few examples on how to get miners to think about their options if an emergency would arise. The training then should be expanded to a more realistic approach by conducting Mine Emergency Response Disasters (MERD) exercises. For example, incorporating and combining MERDS with classroom training sessions, and escapeway drills on a quarterly basis, could enhance training to better prepare miners for emergencies. Mine operators could assess and track the readiness of the work force. MSHA and NIOSH could participate in these events so that the mining community could share what is learned during these training sessions. The more miners are given the opportunity to be faced with having to make decisions during non emergency training drills, the better prepared they will be to make the right decisions during a real emergency. We know from the 2006 mine disasters that annual training is not good enough. We suggest that based on the NIOSH report referenced above, that quarterly training would be superior.

4) Describe any advantages, disadvantages, and costs that would be associated with conducting motor task (hands-on), decision-making, and/or expectations training more frequently than once per year.

UMWA Comment: The main advantage would be a well-trained workforce that would be better able to deal with emergency situations. The operators already own or have access to training models, so they should put them to use more frequent and provide more meaningful training. The cost associated with this training would not be high because companies already own or have access to training models. Under the existing requirement, the hands on and expectations training has been somewhat beneficial, but only on a limited basis. It is documented that the training received by miners diminishes over time. In a series of studies from 1990 through 1993, the US. Bureau of Mines, University of Kentucky, and MSHA researchers measured skills degradation. In one study, the proficiency rates dropped about 80 percent in follow-up evaluations conducted about 90 days after training. It was recognized that with any non-routine task, which would include constructing, activating, and using a refuge alternative, knowledge and skill diminish rapidly. In another incorporated related study, 4 researchers concluded, "companies should adopt a hands-on training protocol".

In an article titled "Retention of Military Knowledge and Skills" the U.S. Army Research Institute for the Behavior and Social Sciences (ARI) investigated soldiers'

retention of skills and knowledge learned during training. This study captures over 25 years of work on the topic of skill retention. In the report it pointed out how rapidly individual procedural tasks will be forgotten and the importance of more frequent training versus less.

Other research was conducted by Hagman and Rose 1983; Johnson 1981, that pointed out "a second feature of motor tasks is that people forget over time". They trained a mine's workforce to the point that each miner was able to perform a perfect donning sequence of SCSR's on the day he or she was trained. Then these trained miners were divided into two groups (a control group and an experimental group) from which samples would be taken during the ensuing year. These samples were drawn without replacement every three months. The control group received no additional training during the year. At nine months no one sampled from this group was able to don his or her SCSR proficiently. The experimental group had SCSR practice and evaluation added as part of their escapeway travel (every 45 days) and fire drills (every 90 days). At the end of the year 65 percent of those sampled from the experimental group were still able to perform a perfect sequence. This study established that workers should be well trained initially given the opportunity to practice regularly. Additionally, the best place to do this is in the workplace. The results of these and other studies prove that when training occurs more often, workers retain more of what they have learned. Common sense would suggest that this would also apply to the use of refuge alternatives.

This in itself should convince MSHA to increase the various trainings necessary for Refuge Alternatives to ensure that miners have the knowledge and skills necessary if the need to barricade or evacuate during a mine emergency would occur. Further we are aware of no compelling evidence since the NIOSH report Congress asked MSHA to rely upon that would contradict the NIOSH recommendation.

5) Based on your experience, has the quarterly training on procedures for deploying and using the refuge alternative reinforced annual motor task (hands-on), decision-making, and expectations training? If so, how? If not, why not?

UMWA Comment: As the UMWA Administrator of Health and Safety (Dennis O'Dell), I have had the opportunity to be present at training facilities during the time refuge alternative training was provided to miners. What I routinely observed was a group of 25 to 30 miners watching a trainer deploy the refuge chamber while talking to the group of the procedure, then allowing the miners to crawl inside the deployed unit if they wanted to. The instructor would ask if there were any questions (normally no more than 2 or 3), then the class would return to the classroom and move on to the next subject as required by approved training or retraining class. I have also observed training that ranged from watching a film, to discussing the procedure. To validate this as the normal training procedures, I polled other miners at their operations. These miners confirmed this to be true. Some miners suggested when the rule first became effective the training was much more thorough. However as time passed miners report that the training became less informative and less time was spent covering the subject. One group of miners reported that on their initial training the refuge chamber malfunctioned and had to be sent back to

the manufacturer for repairs. This left those observing with little confidence that they could trust the real units that were placed underground.

Most miners have never received a true hands-on experience with operating and deploying the units. The so-called "hands-on training" was observing the instructor with his hands on. As far as expectation training, many miners suggested that they have no expectation of the units because they expected to never use them. Some even suggested that because of their lack of confidence, if a disaster occurred at their mine and they were not able to escape, Mine Rescue personnel would probably find them dead along a belt line or other areas trying to make it outside rather than barricade in a refuge alternative. This information is quite disturbing and reinforces the Union's comments that what is currently provided on procedures for deploying and using the refuge alternative reinforced annual motor task (hands-on), decision-making, and expectations training, is fulfilling the intent of the rule nor is it adequate to protect and inform our miners.

6) Based on your experience, how long does it take to provide quarterly training and annual motor task (hands-on), decision-making, and expectations training for the types of refuge alternatives used in your mine? What is the cost of each type of training, including training materials?

UMWA Comment: The UMWA has only observed "hands-on training" provided by employer trainers with limited participation that has lasted no more than 30 minutes. We have never observed miners being trained on true "decision-making skills" therefore we cannot confirm that this type of training is provided. In lieu of our observations, it would be impossible to provide information to the Agency on how long it would take to provide quarterly training and annual motor task (hands-on), decision-making, and expectations training for the types of refuge alternatives used at our UMWA represented operations.

7) What problems or issues have miners encountered during required quarterly or annual training? Please provide any other data or information that you think would be useful to MSHA as the Agency evaluates the effectiveness of its regulations and standards related to training miners to deploy and use refuge alternatives in underground coal mines.

UMWA Comment: See our comments in question #5 above.