From: Kimberli Tatton [mailto:kimberli@mininghealthandsafety.com]
Sent: Monday, August 18, 2008 11:18 AM
To: zzMSHA-Standards - Comments to Fed Reg Group
Cc: 'Randy Tatton CMSP'; 'Jeri Proulx'; 'Lynn Sitterud'
Subject: RIN 1219-AB58
Importance: High

Attached are our comments on MSHA's proposed rules for refuge alternatives in underground coal mines.

Kimberli Tatton

Mining Health and Safety Solutions, Inc.

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503-703-3922

fax 503-210-6860

kimberli@mininghealthandsafety.com

MHSS
Mining Health & Safety Solutions

AB58-COMM-18
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August 13, 2008, 2008

Patricia W. Silvey
Director, Office of Standards, Regulations & Variances
U.S. Department of Labor
Mine Safety and Health Administration
1100 Wilson Boulevard
Arlington, VA 22209-3939

RE: Modern Mine Safety Supply LLC (MMSS) Comments on MSHA's Proposed Rules for Refuge Alternatives for Underground Coal Mines (73 Fed. REG. 34140; RIN 1219-AB58)

Assembled below are the MMSS comments on the Mine Safety and Health Administration's (MSHA) Notice of Proposed Rulemaking to amend 30 C.F.R. Parts 7 and 75 that have been published in the Federal Register on July 7, 2008.

Introduction

MMSS is pleased to have this opportunity to submit comments on this significant rulemaking effort that is intended to improve the health and safety of the nations coal miners.

MMSS is a family owned business, managed by Shawn Sitterud. The company has over 80 years experience as fabricators in the underground coal mining equipment industry. The company has a history of finding unique and efficient solutions to many dilemmas facing the underground mining industry. Working with Randy Tatton CMSP, a safety professional with over thirty-five years in underground coal mining MMSS has developed a mine refuge chamber that is designed to not only survive an emergency event, but also the day to day rigors of the mine. The refuge chamber is extensively equipped and designed to keep survivors as safe as possible for up to 96 hours, or until rescue teams can reach them. An artificial environment has been created to provide adequate breathable air, food and water and sanitary needs of its occupants. MMSS is committed to ensuring the highest level of safety we can offer, giving a second chance to those who may not otherwise have one.

MMSS shares a fundamental commitment with MSHA to improve the health and safety of miners. However we stress, that MSHA must also take into consideration the long term economic viability of mining as the cornerstone upon which all other commerce is based. Within the past few years MSHA has proposed or finalized sweeping revisions to its standards. While each of these initiatives exerts significant economic pressure on the industry, the cumulative effect of these health initiatives is unprecedented; save perhaps, for the passage of the Mine Act itself.

Every one in the coal mining industry, including those of us that act in support roles, are in favor of efforts that will further enhance a miner's chance of surviving in an event that prevents escape from the underground mine workings. All agree that expedited escape to the surface will always be the primary endeavor. Unfortunately, the need remains to enhance miner's probability of survival in an event where escape is impossible.

Judging from comments presented at public hearings, many of the concerned parties have serious concerns with the expedited time frames imposed by the 'Miner Act" for MSHA to complete this critical rulemaking. There is a great deal of concern about if this mandate has provided adequate time to ensure that refuge alternatives will perform as expected during a serious emergency situation. MMSS shares this concern because these rushed timeframes have made it very difficult to ensure that the MMSS Mine Refuge Chamber and its associated components are developed and tested to the point to ensure they are able to perform as expected during these emergency conditions and situations. Mine Refuge Alternative manufacturers deserve to have adequate time to ensure that they provide the best and safest products.

Understanding how politically difficult it must be, MMSS respectfully requests that MSHA does not take final action on these proposed regulations until there has been sufficient time to determine what the actual standards for a Mine Refuge Alternative should be and that testing has been done to determine and verify that the products meet such standards.

MMSS submitted its 26 Man Mine Refuge Chamber to the National Institute of Occupational Safety and Health (NIOSH) for testing. A simulated human subject test was made on this Refuge Chamber by the National Personal Protection Laboratory at its Lake Lynn facility in West Virginia. The MMSS Mine Refuge Chamber did not pass all if its design requirements due to two different component failures.

Measures were taken to correct the issues that caused the component failures in the MMSS Mine Refuge Chamber. A request was then made for a re-evaluation by NIOSH. MMSS was informed at that time that NIOSH would no longer be involved in testing Mine Refuge Alternatives at its Lake Lynn facility. Therefore, MMSS requested that MSHA and NIOSH travel to the MMMS facility in Utah to participate in an evaluation its Mine Refuge Chamber while fully occupied with human test subjects. Both agencies refused to have a role in this very critical testing. Therefore, on April 8, 2008 MMSS undertook the testing on its own with the support and assistance of the State of West Virginia and volunteer subject matter experts from the University of Utah. to demonstrate that all deficiencies had been resolved. The MMSS Mine Refuge Chamber was again evaluated against the West Virginia standards and MSHA criteria to demonstrate that issues resulting in failure had been resolved. This test verified that the problems found in the initial NIOSH evaluation had been corrected and that the unit performed very well. A report of the findings of this study is being included as part of the State of West Virginia's comments on this pending regulatory action.

MMSS realizes that there are political pressures that may have prevented governmental involvement in this type of testing. Never the less, a very critical opportunity to evaluate Mine Refuge Alternatives in a real situation where live human test subjects were involved, shich ad never been done, was missed by the very entities that are charged with the development of standards to govern this technology.

II. Section-By-Section Analysis

A. Part 7 Approval – (Page 34142)

MSHA is proposing the approval requirements in part 7 to allow refuge alternatives or components to be tested by applicants or third-parties. MSHA has a 20-year history of administering this program, which has reduced product testing costs and improved approval efficiency. Under the proposal, the applicant, usually the manufacturer, would have to provide

the required information and demonstrate that the refuge alternative or component meets the technical requirements and test criteria. Based upon an evaluation of this information, MSHA would issue an approval.

Comment:
MMSS commends the agency's proposal to use Part 7 approval processes. However, it will require an acceleration of accreditation of third-party laboratories. The use third party laboratories or facilities inside and outside the US to provide necessary accreditation or approval must be more readily accepted by MSHA. In some cases where protocols and testing procedures may not be as rigorous or identical to the MSHA procedures, they are sufficient to meet the requirements and provide the necessary levels of safety. MSHA must be more willing and open to accept these approvals. There is growing need for MSHA to resolve differences in acceptance of adequate testing procedures in order to allow new technology to reach the US mining industry as quickly and efficiently as possible.

Section 7.501 Purpose and Scope – Page 34142

Refuge alternatives that states have approved and those that MSHA has accepted in approved ERP would meet the requirements of this proposed rule. When mine operators replace these refuge alternatives or components, the new refuge alternatives or components must meet the requirements of the proposed rule. Based on preliminary discussions with manufacturers, MSHA used the estimated service life of the pre-fabricated self-contained refuge alternative. This would allow refuge alternatives to be used until replaced or 10 years maximum. This would allow refuge components to be used until replaced or 5 years maximum. This would allow refuge components to be used until replaced or 5 years maximum.

Comment:
This statement, *("Refuge Alternatives that states have approved and those that MSHA has accepted in approved ERP would meet the requirements of this proposed Rule")* is very clear. It is very alarming that testimony by MSHA officials in the recent public hearings has indicated that the agency may now be taking a different stance that is so clearly stated in the preamble to the proposed rule. This section also states that, "*Based on preliminary discussions with manufacturers, MSHA used the estimated service life of the prefabricated refuge alternative. This would allow refuge alternatives to be used until replaced for 10 years maximum.*"

Refuge alternative manufacturers and coal mine operators need to know now exactly what the intent of the agency is with respect to grandfathering of purchased an/or delivered pre-fabricated refuge alternatives. Refuge alternative manufacturers and coal mine operators have placed purchase orders and are currently taking delivery of pre-fabricated refuge alternatives with the understanding that such units would comply with MSHA's final rule once promulgated. MMSS believes that it is imperative that MSHA unconditionally accept state approved refuge alternatives for the purpose of meeting all requirements of this proposed rule and also the final rule once promulgated as is clearly stated in this part. It is critical that MSHA provide clarity to this issue as soon as possible, and certainly in advance of the rule that will in all likelihood not be final until December 2008.

It must be noted that MMSS. On of the four refuge alternative manufacturers never had discussions with MSHA pertaining to service life of refuge alternatives nor their components. This Notice of Proposed Rulemaking seems to contain very prescriptive requirements that do not meet the intended approach of Congress, which is to provide rulemaking that utilizes an individual approach. MMSS believes that this preamble should be consistent with Congressional intent and should be written to allow for MSHA acceptance of refuge alternatives upon submission of the necessary documentation that establishes individual manufacturers recommended service-life limits and not arbitrary deadlines for all refuge alternatives and their associated components.

Section 7.502 Definitions (Pages 34142 - 34143)

Refuge alternative
MSHA proposes to define refuge alternative as a protected, secure space with an isolated atmosphere and integrated components that create a life-sustaining environment for persons trapped in an underground coal mine. The proposed rule addresses refuge alternatives that consist of a protective structure, an airlock, an interior space, and components that provide for breathable air, air monitoring, and harmful gas removal. The refuge alternative would also include provisions for sanitation, lighting, communications, food and water, and first aid.

Comment:
MMSS suggests that this preamble provide more clarity pertaining to the terms "harmful gas removal". There are numerous harmful gasses that can be found in an underground coal mine. These gasses certainly become more numerous in the event of a mine fire or explosion. This documentation should specify which harmful gasses the agency intends for removal.

Section 7.503 Application Requirements – (Pages 34143 - 34144)

Application Requirements Proposed paragraph (a) would require that an application include information to assure that MSHA can determine if a refuge alternative or component meets the technical requirements for approval, functions as intended, and is safe for use in an underground coal mine.

Comment:
This statement should also include language to make it clear that all refuge alternatives that have been approved by a state agency and or that MSHA has accepted in approved ERP would meet the requirements of this proposed rule.

The hazardous nature of an underground coal mine requires that sources of ignition be eliminated. MSHA may have approved some equipment as intrinsically safe or permissible that may be used in a refuge alternative component. The confined space of an underground coal mine necessitates that materials be designed so that they will not contribute to a fire or give off harmful gases when exposed to heat.

Comment:
MMSS has an MSHA approved explosion-proof blower that has been approved as a component in its pre-fabricated refuge alternative. The language in the above paragraph should be clarified to ensure that this type of equipment is acceptable for compliance with this proposed rule.

Suggested Language:
The hazardous nature of an underground coal mine requires that sources of ignition be eliminated. MSHA may have approved some equipment as intrinsically safe or explosion proof and permissible, that may be used in a refuge alternative component. The confined space of an underground coal mine necessitates that materials be designed so that they will not contribute to a fire or give off harmful gases when exposed to heat.

Section 7.504 Refuge Alternatives and Components; General Requirements (Pages 34144-34146)

Paragraph (a)(1) *would require refuge alternatives and components to be intrinsically safe for use in an underground coal mine and designed with fire and explosion-proof features for use with an oxygen supply component. This requirement would assure that the refuge alternative or component does not contribute to a secondary fire or explosion.*

Comments:
MMSS has an MSHA approved explosion-proof blower that has been approved as a component in its pre-fabricated refuge alternative. The language in the above paragraph should be clarified to ensure that this type of equipment is acceptable for compliance with this proposed rule.

Suggested Language:
Paragraph (a)(1) *would require refuge alternatives and components to be permissible. Intrinsically safe or explosion-proof components are acceptable for use in an underground coal mine when designed with fire and explosion-proof features for use with an oxygen supply component. This requirement would assure that the refuge alternative or component does not contribute to a secondary fire or explosion.*

Paragraph (b)(1) *would require that, when used in accordance with the manufacturer's instructions and defined limitations, the apparent temperature in the fully occupied refuge alternative not exceed 95° Fahrenheit. The apparent temperature is a measure of relative discomfort due to the combined effect of heat and humidity. The concept of apparent temperature was developed by R.G. Steadman (1979) and is based on physiological studies of evaporative skin cooling for various combinations of ambient temperature and humidity. At higher dew-points, the apparent temperature exceeds the actual temperature and measures the increased physiological heat stress and discomfort associated with higher than comfortable humidity. The likelihood of adverse effects from heat may vary with a person's age, health, and body characteristics; however, apparent temperatures greater than 80 °F are generally associated with some discomfort. Temperatures in excess of 105 °F are considered life threatening, with severe heat exhaustion or heatstroke possible after prolonged exposure or significant physical activity. There is a general consensus among researchers that the apparent temperature within a confined space occupied by humans should not exceed 95 °F. MSHA recognizes that body heat*

and heat generated by chemical reactions (i.e., CO2 scrubbing chemicals) are inherent heat-producing sources within a refuge alternative. Ambient temperature in a refuge alternative also is affected by the mine temperature compounded by high humidity in the sealed environment. High humidity reduces a body's ability to regulate temperature by sweating, which could result in a dangerously elevated internal body temperature.

Comments:
MMSS agrees that the apparent temperature within the confines of a mine refuge alternative must be maintained at or below 95 degrees F. MMSS recommends that MSHA revise the proposed rule to specify the exact method that all parties must use to determine the apparent temperature. There are various methods to accomplish this determination. It is essential that all are using the same method and held to the same standard.

Paragraph (b)(2) *would require that calculations or tests be conducted to determine the maximum apparent temperature in the refuge alternative when used at maximum occupancy and in conjunction with required components calculations or test results. In addition, the proposed rule would require that an application include test results and calculations to demonstrate that the apparent temperature within the refuge alternative would not exceed 95 °F when used in conjunction with required components and fully occupied.*

Comments:
In addition, there is another critical factor that influences apparent temperature within the confines of the mine refuge alternative. This factor is the ambient outside temperature of the mine. This temperature dramatically influences the refuge alternative's ability to reject heat. MMSS believes that this factor must be included as part of the calculations or tests referenced in Paragraph (b)(2).

Suggested Language
Paragraph (b)(2) *would require that calculations or tests be conducted to determine the maximum apparent temperature in the refuge alternative when used at maximum occupancy and in conjunction with required components calculations or test results. In addition, the proposed rule would require that an application include test results and calculations to demonstrate that the apparent temperature within the refuge alternative would not exceed 95 °F when used in conjunction with its required components and is fully occupied and considering the specific mine where it will be in service .*

Paragraph (c)(2) *would require that refuge alternatives include lighting sufficient to perform tasks. Lighting that generates significant heat, or requires continual manual power for light generation, would be unacceptable. Light is essential to allow persons to read instructions, warnings, and gauges; operate gas monitoring detectors; and perform other activities related to the operation of the refuge alternatives. MSHA recommends a minimum of 1 foot candle of lighting be provided per miner per day.3 The manufacturer or approval holder would have to measure the number of foot candles provided per miner per day and report this information in the refuge alternative's manual.*

Comments:
MMSS requests that the amount of light that is proposed be reduced. Each miner will be encouraged to bring their personal cap lamps into the refuge alternative. One light at a time can be used to conserve that available lighting. Additional emergency lighting can be supplemented with permissible flashlights and chemical glow lighting. Miners are accustomed to working in low light situations. The amount of lighting capacity proposed is excessive.

Section 7.505 Structural Components – (Page 34146 – 34148)

Proposed § 7.505 Addresses the Structural Components Required for Refuge Alternatives

Paragraph (a)(1) *would require that refuge alternatives provide a minimum of 15 square feet of usable floor space and a minimum of 60 cubic feet of usable volume per person. MSHA believes that these proposed minimums are necessary to provide adequate room for miners using the refuge alternative. Usable space or volume means space or volume without stored items. The space and volume requirements are exclusive of the airlock space and volume. NIOSH design parameters recommended 15 square feet and 85 cubic feet per miner. NIOSH stated that these recommendations were not to be considered absolute. Under this proposed provision, a space of 6 feet of length and 2.5 feet of width would amount to 15 square feet. If the same area has a height of 4 feet, the miner would be provided with 60 cubic feet of space. For mines with lower heights, the 60 cubic feet of space may need to be attained by increasing the length or floor area. The area cannot be determined solely by the number of miners that would be using the refuge alternative. Miners would need some free space to operate components, drink, eat, and use the sanitation facilities—and tend to injuries. Additional space may be needed for suspended curtains, as part of a passive system CO2 removal system. Also larger volumes seem to be more effective at dissipating heat.*

Comments:
MMSS is gravely concerned about the requirements in 75.505(a)(1), which would require pre-fabricated refuge alternatives to provide at least 15 square feet of floor space and at least 60 cubic feet of unrestricted volume per occupant. MMSS does not believe that MSHA has a sound basis for requiring this much space and volume, other than wanting to provide a measure of comfort for the occupants.

On April 8, 2008 MMSS conducted at test of its mine refuge chamber when fully occupied by 26 occupants. Each occupant was provided with less than half the unrestricted floor space and unrestricted volume proposed. The occupants remained in the confines of the mine refuge chamber for approximately 6 hours. There were no complaints about the amount of space provided. One occupant described the space he was provided as being similar to that in the middle seat of a commercial passenger aircraft. MMSS believes that this much space and volume is sufficient to sustain life for a period of 96 hours.

The significance of this issue cannot be understated. MMSS is in the process of delivering or has delivered pre-fabricated refuge alternatives that provide less than half the unrestricted floor space that is proposed. If the proposed space requirements are finalized these mining operations would be required to have three refuge alternatives per working section rather than one.

Mine operators ordered and purchased these products to comply with MSHA's PIB No. P07-03 assuming that they would be in compliance with future regulations. To now impose additional requirements that would render these refuge alternatives as non-compliant is unwarranted unless it can be positively demonstrated by MSHA that the if units are properly maintained and operated, will not sustain life for the required period of time.

Section 7.506 Breathable Air Components (Pages 34148 – 38152)

Paragraph (b)(1) *addresses MSHA's need to evaluate the effectiveness and compatibility of the breathable air components to assure that the supply of breathable air is sufficient to sustain persons occupying the refuge alternative for 96 hours. In MSHA's February 8, 2007, Program Information Bulletin No. P07–03, (PIB P07–03), MSHA addressed that the Agency considered 96 hours to be necessary. MSHA concluded that a 96-hour supply was warranted, and accordingly, the Agency is proposing 96 hours as a time that breathable air would need to be provided.*

Comments:
MMSS does not believe that MSHA has the necessary justification to require refuge alternatives to assure breathable air is sufficient to sustain occupants of the refuge alternative for 96 hours. The review of the 12 accidents presented in the NIOSH Docket 125 discussed above and a review of MSHA historical data on accidents does not support 96 hours as the most likely duration to adequately protect miners. MMSS believes that MSHA arbitrarily doubled the time duration required by the West Virginia regulation without any justification, other that political motivations.

To double the duration of time to supply breathable air manufacturers have expended substantial additional time and expense, which dramatically increased the complexity and cost of their products. MMSS agrees that this additional time may provide an added measure of safety, although, it also certainly makes the systems much more complex which effects reliability. MMSS requests that MSHA re-evaluate its decision to propose a requirement for a minimum of 96 hours of breathable air. MMSS requests that MSHA provide the logic and rational for requiring 96 hours of breathable air. If it can not be supported, then the final rule should require 48 hours of breathable air.

It must also be noted that some refuge alternatives may require mechanical cooling to comply with an apparent temperature of 95 degrees F. If such refuge alternatives are required to supply 96 hours of breathable air, they must also be capable of providing cooling for that same duration of time. MMSS is currently developing an MSHA approved explosion-proof air conditioning system. Providing mechanical cooling for 96 hours is technically very difficult and may not be feasible due to the logistics and costs involved. Cooling a refuge alternative of a 48 hour period of time is much more practical and feasible.

Considering some of the recent comments it must be apparent to MSHA that mechanical cooling will likely be necessary in some coal mines in different geographical regions of the United States. Considering the complexity of developing an air conditioning system that is intrinsically safe or permissible, it may make more sense to require breathable air for 48 hours. All data

indicates is an acceptable amount of time. It would a must less difficult task to develop mechanical that would dependably last for 48 hours rather that expecting manufacturers to accomplish a much more monumental task of developing a similar technology that would perform effectively for 96 hours.

Section 7.507 Air-Monitoring Components (Pages 34152 – 34153)

Proposed § 7.507(a) would include requirements for an air-monitoring component that provides persons inside the refuge alternative with the ability to determine the concentrations of carbon dioxide, carbon monoxide, oxygen, and methane, inside and outside the structure, including the airlock. This proposal would assure that breathable air is properly monitored and that air monitoring equipment is properly inspected, tested, maintained, and stored so that it is fully charged and available for immediate use. The monitoring of these gases is critical to the survival of miners occupying a refuge alternative. The proposal includes the recommended values provided in the NIOSH report for oxygen, carbon monoxide, and carbon dioxide. NIOSH recommended values and gas concentration ranges that would assure that the quality of breathable air is maintained. The ability to monitor the atmosphere outside the refuge alternative would assist miners inside the refuge alternative in making crucial decisions in the event of a mine emergency. Additionally, methane would be monitored to negate the possibility of oxygen deficiency or the potential for explosion.

Comments:

MMSS does not believe that there is a need to monitor for carbon dioxide on the outside of the refuge alternative, nor is it necessary to monitor for methane inside. Carbon dioxide on the outside does not present a risk to the occupants. Therefore, there is no need to monitor for it. Once occupants enter the confines of the refuge alternative, methane should not enter. Even if methane is present inside there is no way it can be eliminated. There are no potential ignition sources in the refuge alternative. Therefore, methane should not present a hazard even if it is present.

MMSS suggests that the proposed requirement to monitor for these gasses in situations where they do not effect occupants or if there is no method to eliminate such gasses should not be included in the final rule.

Section 7.508 Harmful Gas Removal Components (Pages 34153 – 34154)

This section addresses removing harmful gases to assure that breathable air is maintained for persons occupying refuge alternatives during the 96-hour period.

Comments:

MMSS does not believe that MSHA has the necessary justification to require refuge alternatives to supply breathable air sufficient to sustain persons occupying the refuge alternative for 96 hours. The review of the 12 accidents presented in the NIOSH Docket 125 discussed above and a review of MSHA historical data on accidents does not support 96 hours as the most likely

duration to adequately protect miners. MMSS believes that MSHA arbitrarily doubled the time duration required by the West Virginia regulation without any justification, other that political motivations.

To double the duration of time to supply breathable air manufacturers have expended substantial additional time and expense, which dramatically increased the complexity and cost of their products. MMSS agrees that while this additional time may provide an additional measure of safety, although, it also certainly makes the systems much more complex which effects reliability.

MMSS requests that MSHA re-evaluate its decision to propose a requirement for a minimum of 96 hours of breathable air. MMSS requests that MSHA provide the logic and rational for requiring 96 hours of breathable air. If it can not be supported, the final rule should require 48 hours of breathable air.

It must also be noted that some refuge alternatives may require mechanical cooling to comply with an apparent temperature of 95 degrees F. If such refuge alternatives are required to supply 96 hours of breathable air, then they must also be capable of providing cooling for that same duration of time. MMSS is currently developing an MSHA approved explosion-proof air conditioning system. Providing mechanical cooling for 96 hours is technically very difficult and may be not even be feasible due to the logistics and costs involved. Cooling a refuge alternative of a 48 hour period of time is much more practical and feasible.

7.509 Approval Markings (Page s34154 – 34155)

No comments:

B. Part 75 Safety Standards

Section 75.221 Roof Control Plan Information (Page 34155)

No Comments:

Section 75.360 Preshift Examination (Page 34155)

Paragraph 75.360(d) would require the person conducting the preshift examination to check the refuge alternative for damage, the integrity of the tamper-evident seal and the mechanisms required to activate the refuge alternative, and the ready availability of compressed oxygen and air. Refuge alternatives may be damaged by persons, mining equipment, or the mine environment. Compressed gas storage systems may leak. Due to the critical nature of refuge alternatives, each refuge alternative must be examined as part of the preshift examination. Visible damage to the refuge alternative and damage to the tamper-evident seal would be checked during the preshift examination. The preshift examination would reveal loss of compressed gas pressures, electrical charge, or communications system. MSHA requests specific comments on the visual damage that would be revealed during the preshift examinations. The Agency is concerned with the feasibility and practicality of visually checking the status of refuge

alternatives without having to enter the structure or break the tamper-evident seal. Please be specific in your response, regarding methods or alternatives, rationale, safety benefits to miners, technological and economic feasibility and data to support your comment.

Comments:

The MMSS pre-constructed refuge alternative has been approved by The State of West Virginia and has also been accepted for use in approved ERP's. The unit utilizes a battery powered blower to proved flow for the powered carbon dioxide scrubbing system.

MMSS agrees that the integrity of the refuge alternative would remain in a more ready and usable state if the unit is sealed and checked during the pre-shift examination from the outside rather than requiring a person to enter on a regular basis.

The blower explosion-proof component has one plane flange explosion proof joint. MMSS strongly recommends that the refuge alternative be treated the same as a piece of electrical equipment that is out of service. Therefore, a weekly permissibility check of this single plane flange joint would not have to be made. Requiring a person to enter the refuge alternative weekly to check this joint would deteriorate the integrity of the refuge alternative.

It must also be noted, in all likelihood the same issue will be present in refuge alternatives that require mechanical cooling to maintain apparent temperatures below 95 degrees F. The final regulation should also be the same in this instance.

Section 75.372 Mine Ventilation Map(Page 34155)

No Comments:

Section 75.1200 Mine Map (Page 34155)

No Comments:

Section 75.1202–1 Temporary Notations, Revisions, and Supplements (Page 34155)

No Comments:

Section 75.1500 Emergency Shelters (Page 34155)

Section 75.1501 Emergency Evacuations (Page 35155)

No Comments:

Section 75.1502 Mine Emergency Evacuation and Firefighting Program of Instruction (Pages 35155 – 34156)

No Comments:

Section 75.1504 Mine Emergency Evacuation Training and Drills (Pages 34156 – 34157)

No Comments:

Section 75.1505 Escapeway Maps (Page 34157)

No Comments:

Section 75.1506 Refuge Alternatives (Pages 34157 - 34159)

Paragraph (a)(1) would require at least 15 square feet of usable floor space and at least 60 cubic feet of usable volume per person. This proposed requirement of interior floor space and volume is necessary to provide adequate room for miners during any period of time confined in the refuge alternative. MSHA is interested in practical floor space and volume requirements for mining operations. The proposed requirements are intended to mean that the miner would have this space available to them without being affected by any other factors, e.g., stored items. MSHA intends that space requirements would not include airlock space. The NIOSH report recommended key design values of 15 square feet of floor space and 85 cubic feet volume per miner. However, in its report, NIOSH stated that these recommendations were not to be considered absolute. MSHA recognizes that achieving the volume per miner in refuge alternatives for low coal mines could be problematic. To lie down, miners would require a certain length and width. For example, 15 square feet would be provided by a space 6 feet long and 2.5 feet wide. This space would have to be 4 feet high, which would give each miner 60 cubic feet of volume. These dimensions would serve as a minimum for the miner during the periods of confinement. In lower mining heights, the 60 cubic feet of volume may need to be gained by increasing the floor space. For example, 60 cubic feet of volume in a refuge alternative 2.5 feet high would require 24 square feet of floor space, which could be provided by a space 6 feet long and 4 feet wide. MSHA solicits comment from the public on these proposed values for floor space and volume, particularly in low mining heights. Please be specific in your response, including alternatives, rationale, safety benefits to miners, technological and economic feasibility, and data to support your comment. Miners would need to have additional space to perform duties such as attending to the harmful gas removal components, performing gas tests or attending to basic needs—drinking, eating, and using the sanitation facilities—and providing for injured miners. Curtains suspended as part of a passive system to remove carbon dioxide should be considered when determining volume. Another important factor in the volume design is the need to control the apparent temperature in the interior space of the refuge alternative. Larger volumes are more effective at dissipating heat because of increased surface area.

Comments:

MMSS is gravely concerned about the requirements in 75.505(a)(1) which would require pre-fabricated refuge alternatives to provide at least 15 square feet of floor space and at least 60 cubic feet of unrestricted volume per occupant. MMSS does not believe that MSHA has a sound basis for requiring this much space and volume, other than wanting to provide a measure of comfort for the occupants.

On April 8, 2008 MMSS conducted a test of its mine refuge chamber when fully occupied by 26 occupants. Each occupant was provided with less than half the unrestricted floor space and unrestricted volume proposed. The occupants remained in the confines of the mine refuge chamber for approximately 6 hours. There were no complaints about the amount of space provided. One occupant described the space he was provided as being similar to that in the middle seat of a commercial passenger aircraft. MMSS believes that this much space and volume is sufficient to sustain life for a period of 96 hours.

The significance of this issue cannot be understated. MMSS is in the process of delivering or has delivered pre-fabricated refuge alternatives that provide less than half the unrestricted floor space that is proposed. If the proposed space requirements are finalized these mining operations would be required to have three refuge alternatives per working section rather than one.

Mine operators ordered and purchased these products to comply with MSHA's PIB No. P07-03 assuming that they would be in compliance with future regulations. To now impose additional requirements that would render these refuge alternatives as non-compliant is unwarranted unless it can be positively demonstrated by MSHA that if the unit is properly maintained and operated, will not sustain life for the required period of time.

This entire section of the proposal is documented and required in section 7.505(a)(1) therefore it is redundant and does not need to be required in this section again. It only serves to make the rule complicated and more difficult to understand.

Section 75.1507 Emergency Response Plan; Refuge Alternatives (Pages 34159 – 34163)

Paragraph (a)(3) would require that the rated capacity of each refuge alternative, the number of persons expected to use each refuge alternative, and the duration of breathable air provided per person by the approved breathable air component of each refuge alternative be defined in the ERP. The ERP would need to state specifically that the refuge alternatives can support a specified number of persons for a designated length of time. This information assists MSHA in evaluating whether the refuge alternative or component meets the requirements for sustaining persons for 96 hours. MSHA solicits comments from the public on the 96-hour duration. Please be specific in your response, including alternatives, rationale, safety benefits to miners, technological and economic feasibility, and data to support your comment.

Comments:

MMSS does not believe that MSHA has the necessary justification to require refuge alternatives to assure breathable air is sufficient to sustain persons occupying the refuge alternative for 96 hours. The review of the 12 accidents presented in the NIOSH Docket 125 discussed above and a review of MSHA historical data on accidents does not support 96 hours as the most likely duration to adequately protect miners. MMSS believes that MSHA arbitrarily doubled the time duration required by the West Virginia regulation without any justification other that political motivation.

To double the duration of time to supply breathable air manufacturers have expended substantial additional time and expense, which dramatically increased the complexity and cost of their products. MMSS agrees that while this additional time may provide an additional measure of safety, it also certainly makes the systems much more complex which effects reliability. MMSS requests that MSHA re-evaluate its decision to propose a requirement for a minimum of 96 hours of breathable air. MMSS requests that MSHA provide the logic and rational for requiring 96 hours of breathable air and if it can not be supported, then the final rule should require 48 hours of breathable air.

It must also be noted, that some refuge alternatives may require mechanical cooling to comply with an apparent temperature of 95 degrees F. If such refuge alternatives are required to supply breathable air for 96 hours, they must also be capable of providing cooling for that same duration of time. MMSS is currently developing an MSHA approved explosion-proof air conditioning system. Providing mechanical cooling for 96 hours is technically very difficult and may not even be feasible due to the logistics and costs involved. Cooling a refuge alternative of a 48 hour period of time is much more practical and feasible.

Considering some of the recent comments it must be apparent to MSHA that mechanical cooling will likely be necessary in some coal mines in different geographical regions of the United States. Considering the complexity of developing an air conditioning system that is intrinsically safe or permissible, it may make more sense to require breathable air for 48 hours. All data indicates is an acceptable amount of time. It would a must less difficult task to develop mechanical that would dependably last for 48 hours rather that expecting manufacturers to accomplish a much more monumental task of developing a similar technology that would perform effectively for 96 hours.

Section 75.1508 Training and Records for Examination, Maintenance, Transportation, and Repair of Refuge Alternatives and Components (Page 34163)

No Comments:

Section 75.1600–3 Communications Facilities; Refuge Alternatives (Page 34163)

III. Executive Order 12866 (Pages 34163 – 34164)

No Comments:

Congressional Review Act (Pages 34164 – 34165)

No Comments:

IV. Feasibility Page 34165)

No Comment:

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

Pages (34165 – 34166)

No Comments:

VI. Paperwork Reduction Act (Page 34166)

No Comments:

VII. Other Regulatory Analyses Pages(34166 – 34167)

No Comments:

MMSS has offered its detailed comments throughout the preamble to the rule above. MMSS will now document suggest alternate language for the agency to consider that reflects its comments in the proposal to amend 30 CFR parts 7 and 75. Suggested alternate language will only be offered in specific proposed regulations where MMSS believes it should be applicable.

PART 7—TESTING BY APPLICANT OR THIRD PARTY—[AMENDED]

1. The authority citation for part 7 continues to read as follows:
***Authority:** 30 U.S.C. 957.*
2. Add new subpart L to read as follows:

Subpart L—Refuge Alternatives

Subpart L—Refuge Alternatives

§ 7.501 Purpose and scope.

§ 7.502 Definitions.
The following definitions apply in this subpart:

§ 7.503 Application requirements.

§ 7.504 Refuge alternatives and components; general requirements.
(a) Refuge alternatives and components:
(1) Shall be intrinsically safe for use and designed with fire and explosion proof features for use with an oxygen supply component.

Suggested Language:
(1) Shall be MSHA approved as explosion-proof, permissible or intrinsically safe for use and designed with fire and explosion proof features for use with an oxygen supply component.

(2) Calculations or tests shall be conducted to determine the maximum apparent temperature in the refuge alternative when used at maximum occupancy and in conjunction with required components. The results shall be reported in the application.

Suggest Language
(2) Calculations or tests shall be conducted to determine the maximum apparent temperature in the refuge alternative when used at maximum occupancy, in the applicable mine's ambient temperature and in conjunction with required components. The results shall be reported in the application.

§ 7.505 Structural components.
(a) The structure shall—
(1) Provide at least 15 square feet of floor space and at least 60 cubic feet of volume per person;

Suggested Language:
(1) Provide at least 7.5 square feet of floor space for seated refuge and 9.4 square feet of floor space for supine refuge and at least 30 cubic feet of volume per person;
(Reference – Opinion Report – Unrestricted Floor Space and Volume in Underground Mine Refuge Chambers – Joel M. Haight, Ph.D – Penn State University submitted in comments by the National Mining Association)

§ 7.506 Breathable air components.
(b) Mechanisms shall be provided and procedures shall be followed such that, within the refuge alternative—
(1) The breathable air sustains each person for 96 hours,

Suggested Language
(1) The breathable air sustains each person for 48 hours,

(4) Be capable of being worn for up to 96 hours.

Suggested Language:
(4) Be capable of being worn for up to 48 hours.

§ 7.507 Air-monitoring components.
(a) Each refuge alternative shall have an air-monitoring component that provides persons inside with the ability to determine the concentrations of carbon dioxide, carbon monoxide, oxygen, and methane, inside and outside the structure, including the airlock.

Suggested Language:
(a) Each refuge alternative shall have an air-monitoring component that provides persons inside with the ability to determine the concentrations of carbon dioxide, carbon monoxide, oxygen inside, including the airlock, and carbon monoxide, oxygen and methane outside the structure.

§ 7.508 Harmful gas removal components.

§ 7.509 Approval markings.

§ 7.510 New technology.

PART 75—MANDATORY SAFETY STANDARDS—UNDERGROUND COAL MINES
§ 75.221 Roof control plan information.

§ 75.313 Main mine fan stoppage with persons underground.
(f) Any electric-powered refuge alternative component that may be operated during fan stoppages shall be intrinsically safe.

Suggested Language:
(f) Any electric-powered refuge alternative component that may be operated during fan stoppages shall be MSHA approved as explosion-proof, permissible or intrinsically safe.

§ 75.360 Preshift examination at fixed intervals.
(d) The person conducting the preshift examination shall check the refuge alternative for damage, the integrity of the tamper-evident seal and the mechanisms required to activate the refuge alternative, and the ready availability of compressed oxygen and air.

Suggested Language:
(d) The person conducting the preshift examination shall check the refuge alternative for damage, the integrity of the tamper-evident seal and the mechanisms required to activate the refuge alternative, and the ready availability of compressed oxygen and air. Refuge alternatives that utilize permissible or explosion-proof components will be considered as out service until used. Permissibility checks such equipment will be required to have a check of permissibility on a quarterly basis.

§ 75.372 Mine ventilation map.

§ 75.1200 Mine map.

§ 75.1202–1 Temporary notations, revisions, and supplements.

§ 75.1500 [Removed and reserved]

§ 75.1501 Emergency evacuations.

§ 75.1502 Mine emergency evacuation and firefighting program of instruction.

§ 75.1504 Mine emergency evacuation training and drills.

§ 75.1505 Escapeway maps.

§ 75.1506 Refuge alternatives.
(1) Refuge alternatives shall provide at least 15 square feet of floor space and at least 60 cubic feet of volume per person.

Recommend Language:
(1) Provide at least 7.5 square feet of floor space for seated refuge and 9.4 square feet of floor space for supine refuge and at least 30 cubic feet of volume per person;
(Reference – Opinion Report – Unrestricted Floor Space and Volume in Underground Mine Refuge Chambers – Joel M. Haight, Ph.D – Penn State University submitted in comments by the National Mining Association)

§ 75.1507 Emergency response plan; refuge alternatives.

§ 75.1508 Training and records for examination, maintenance, transportation, and repair of refuge alternatives and components.

§ 75.1600–3 Communications facilities; refuge alternatives.

Again, MMSS appreciates the opportunity to have input in this very important rulemaking process.

Regards,

Randy Tatton CMSP
President,
Mining Health and Safety Solutions Inc.