

# Do You Understand Mine Emergencies?



Are You Prepared for a Mine Emergency?

**Instructor's Guide**

**MODULE 2: EMERGENCY RESPONSE PLANS**

PENN STATE MINER TRAINING PROGRAM  
UNIVERSITY PARK, PA  
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## MINER TRAINING PROGRAM

# DO YOU UNDERSTAND MINE EMERGENCIES?

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ARE YOU PREPARED FOR A MINE EMERGENCY?

## MODULE 2: EMERGENCY RESPONSE PLANS

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Please note that any mention or use of pictures of commercial products associated with mine emergencies does not constitute an endorsement by Penn State, MSHA, or the authors.

## Preface

The history of underground coal in the United States is notable for its successes and failures. In the distant past, coal fueled and played a prominent role in our industrial revolution, rail transportation, iron and steel making, and heating needs. Most recently, it has been the source for affordable electricity, and for a myriad of other fuels and products. Extracting and processing coal is challenging, and the miners who work in the industry work in one of the Nation's most hazardous occupations.

Mine emergencies, such as mine explosions, fires, and inundations have been all too common. Too many miners have lost their lives over the years, and many more have suffered serious injuries doing the job that typically provides challenge, high wages, and good benefits. Mining stakeholders, such as the industry, government, organized labor, the academic community, those who supply products and equipment, and the miners themselves have worked diligently by applying technology, engineering, best work practices, standards, and training to make the mines a less hazardous occupation.

The tragedies of recent mine emergencies, such as Jim Walter Resources No. 5 Mine, Sago Mine, Aracoma Alma Mine No 1, and the Darby Mine No. 1 have reminded us that continuous safety vigilance is our vision, and continuous safety improvement is our goal—a challenge to every new generation. The Mine Improvement and New Emergency Response Act of 2006 (MINER ACT) is the latest example of a multi-faceted, and focused attack on underground coal mining hazards. Essentially, it seeks to enhance mine emergency preparedness and response through improving emergency planning, mine rescue capabilities, mine emergency equipment, technology, and training, specifically through the competitive Brookwood-Sago grant program.

The training program, titled, *Do you understand mine emergencies? Are you prepared for a mine emergency?* is the result of a 2007/2008 Brookwood-Sago Mine Safety Grant. This grant, one of several awarded in 2007 by the Mine Safety and Health Administration, was awarded to the Penn State Miner Training program on September 30, 2007.

The program was the result of a cooperative effort between many mining stakeholders (See Acknowledgements), and consists of an achieved webcast, titled, *Escape and survive*, and the training program referred to above. This program includes Instructor's and Participant's Guides. We believe that frequent, quality training is the key to better identify, avoid, and prevent hazards in an around the mines, and that through the use of this program, miner survivability—as they response to an emergency—will be enhanced.

These materials are available for a limited time at [www.minerstownhall.org](http://www.minerstownhall.org), or through the MSHA Academy at [www.msha.gov](http://www.msha.gov).

We encourage your use and evaluation of this program. We look forward to your comments and suggestions. Please don't hesitate to contact us at 814.865.7472, or by contacting any of the authors (See Appendix C).



## INTRODUCTION

### ***Purpose***

The training program, titled, *Do you understand mine emergencies? Are you prepared for a mine emergency?* was prepared for miners. The purpose of the training program is to enhance a miner's capability to survive a mine emergency, primarily through mine emergency preparedness (MEP). Survivability will depend on many factors, such as size of the mine, location of miners, the scope of the incident, amount of energy released, availability/use of emergency technology, emergency plans, training on MEP, and decision-making. The physical factors of the incident may often be beyond the control of those who manage and mine the coal. What we can control is our knowledge of and skills in emergency preparedness and response. By enhancing a miner's knowledge of emergency principles, standards, laws, procedures, policies, and best practices, combined with excellent performance and practice on emergency skills, and decision-making capabilities, more miners will be able to survive mine emergencies.

### ***Format/content***

This innovative training program uses webcast technology (Internet and CD ROM based), combined with PowerPoint presentations, Instructor's and Participant's Guides. The webcast is a multi-media resource that can be accessed through the Internet at [www.minerstownhall.org](http://www.minerstownhall.org) or played from a CD. During the webcast panel commentaries, PowerPoint slides are used to summarize and supplement most of the main points made by the panelist. In addition, a series of high definition (HD) video clips are embedded within the webcast and "rolled in" at the appropriate times. This realistic clips, shot on location at a working mine, represent a simulated mine emergency and response, and feature donning/switching of the SCSR, and the use of directional lifelines.

This training program consists of six training modules that address the following major mine emergency preparedness issues:

- Mine emergencies
- Emergency response plans
- CSE SR-100 Self-contained self-rescuers
- Emergency communications and miner tracking
- Escape and evacuation
- Breathable air safe havens/refuge chambers

Instructors using these modules are encouraged to tailor the material to their needs. This may mean omitting some of the information, and in some cases, adding site-specific or supplemental information (e.g., pictures, video clips, group activities, quizzes, etc.) other than the ones included in the Participant's Guide. To supplement the content on mine emergency preparedness contained in the modules, the hour-long webcast—featuring an expert panel—is used to introduce and comment on important topics, concerns, and issues, such as the key provisions of the MINER ACT, progress in mine rescue and mine emergency preparedness technology, miner tracking, miners' stress in response to emergencies, decision making, innovative training, and barricading. In the next section, more detailed information is provided on using the materials contained in the training program.

## SUGGESTIONS ON USING THIS TRAINING PROGRAM

### *Planning, Development and Presentation*

Quality training results from a combination of good training material, and competent instructors. The first responsibility of the instructor is to design and develop a lesson plan that is based on a good training needs assessment, and pre-assessment. Essentially, the purpose of the needs assessment defines the training content. The best content is practical, relevant, and selected to meet the needs (both skill- and knowledge-based) of the miner. Typically, miners are willing to open up to learning if they are convinced that the material and information being presented—in short the curriculum—will enhance their safety, and help them achieve their goals. Another way of stating this is to remind instructors to always bear in mind that today's adult learners are tuned in to only one channel—WIIFM—**“What's In It For Me.”!** Further, today's miners are well informed, highly trained, and better educated than previous generations of miners. Today's younger miners—whose ranks are increasing daily—respond best to training that is interactive, image-rich, and lean on lecture-type instructional methods.

Miners should pay attention to training on mine emergency preparedness, and take it very seriously. Part of the responsibility for achieving that rests with the miner. No one learns if they are not ready or willing to learn. The other part of the responsibility lies with the instructor and mine management. The most effective training should always be well-planned, and structured. Ample time and resources should be available to ensure quality training.

Instructors need to also be reminded that the greatest potential for learning (understanding) and retention occurs when the instructional methods provide an opportunity for active participation through doing/demonstrating the skills/knowledge they have been presented and demonstrated to them. With that in mind and what has been already been said regarding the importance of planning and preparation, here are some specific suggestions for presenting this training course:

1. Thoroughly prepare yourself by finding out about your mine's most important training needs in mine emergency preparedness.
2. Read over and study the lesson plans, and make notes to yourself about information you want to emphasize, and specific examples and materials (your ERP plan, information on your mines communication and tracking system, etc.) that you want to use and include in the discussions.
3. The information on the PowerPoint slides is to be used as "talking points." You must master the information (the details of instruction) and be prepared to ask a variety of questions to spur discussion or achieve other participant learning objectives, such as test knowledge of requirements, analyze a problem, explain how things differ, or to understand how things fit together to form the "big picture." The lesson plan consists of instructor objectives, key points to cover (column 1), details of instruction (column 2), and instructor notes (column 3). **You may choose to omit some of the details of the instruction (column 2). Some of this information falls into the category of "nice to know" information. While it is important information, it is not critical to the goal of the training program, i.e., providing the miners with the information and skills that are directly relevant to successfully escaping dangers associated with mine emergencies.** However, it was included in the modules for the benefit of the instructor who may need or want such information and the level of detail provided if he/she is training supervisors, management, responsible persons, etc.

Column 3 contains reminders to the instructors regarding ways to make the training more site-specific, suggestions for getting the students to participate by involving them in the discussions, and additional key points that are not addressed in column 1. The instructor who is adept at asking questions will be better able to get the participants

involved, and consequently have more success in meeting their training needs and goals. Questions are tools that can be used to achieve specific objectives. Generally, if you want to encourage discussions, then use open ended questions. A well prepared instructor will maximize student learning by:

- a) discussing the purpose of the lesson, and how the information and/or skills learned will help them (e.g., enhance their chance of surviving an emergency by remaining isolated from toxic atmospheres, enable them to get accurate information to those who need it...to those who can help them escape the mine, etc.);
- b) sharing the learning objections with the participants;
- c) using group activities if time permits (e.g., using their mine map to get out of the mine in the most efficient way);  
and
- d) encouraging discussion of mine-specific issues and concerns (e.g., improving ERPs, clarifying policies, procedures, etc.).

### ***Application***

Opportunities to apply the knowledge and skills learned in class can be demonstrated in class or out of class. Skills (behaviors) and knowledge and attitudes (SKAs) that are learned and retained for the purpose of emergency response are unique. They must be learned and frequently relearned as a proactive strategy to reduce loss due to injury and property damage if an emergency occurs; however, everyone hopes that the only application of the SKAs stay strictly in the “classroom.” This type of training can become repetitious and participant and instructor motivation and enthusiasm can wane. Therefore, everyone must make a concerted effort to do their part to contribute to the training experience so that the necessary skills and knowledge are learned and retained, and ever ready should the need arise.

### ***Evaluation of Effectiveness***

Training should always be evaluated. It can be evaluated on several different levels, including reaction (satisfaction of the participants with the material, instructor, etc.), learning (did the participants learn a knowledge/skill/attitude in the classroom and can they demonstrate that they learned it?), behavior/performance (was a new behavior or set of skills learned that can be observed outside the classroom, such as donning a SCSR in response to an actual emergency at the mine?), and outcomes or results (are more miners able/capable of evacuating or surviving a mine emergency as a result of the training?). This training program gives the instructor a means to evaluate the training in terms of reaction and learning. This training program includes an evaluation form that should be distributed to the participants at the end of the course, or at the end of a lesson. Summarizing these results will give the instructor data on how well the training program was received and whether the participants were satisfied with the experience (see Appendix A). The training program also includes pre- and post-tests. These tests are intended to measure learning. The pre-tests (limited to five questions) were designed to get a baseline of a participant's knowledge prior to training. The questions that have been prepared evaluate only knowledge. However, instructors are encouraged to include a pre-test of a skill (e.g., donning/switching an SCSR, decision-making when confronted with an escape problem or challenge). The post-tests (include the pre-test questions and several additional questions) are designed to measure (when results are compared with the results from the pre-test) changes in learning resulting from the training. Instructors are encouraged to evaluate changes in behavior or performance that may have resulted from the training.

### ***Summary***

- Quality training results from a combination of good training material, and competent instructors.
- Instructors must take the time to prepare for presenting the training by studying the material, and personalizing/tailoring the lesson plan to their mine.

- Lesson objectives are statements about what you want the participants to know and/or do; they should always be shared with the participants at the beginning of the lesson.
- Instructors need to discuss how the information being presented and the skills being learned will help them in their daily lives to better achieve their goals.
- Participants learn best when a variety of their senses are engaged in the learning; therefore, instructors need to use a variety of instructional methods and choose several methods that actively involve the participants.
- While it varies depending on experience, adult learners possess a wealth of knowledge and skills; instructors need to plan for ways to acknowledge and tap into this valuable training resource.
- One of the best strategies for ensuring participant involvement is to make liberal use of questions.
- During lesson implementation, instructions should summarize often; not only does it allow the instructor to reinforce the most important points of the lesson, it gives the participants an opportunity to reflect on and digest what is being covered, and that in turn often leads to questions by the participants.
- Remember to evaluate the training. Asking questions during the presentation—aside from enriching the curriculum through participant input and involvement, it also gives the instructor the opportunity to gauge how well the material is being understood.
- In addition, oral and written quizzes, and observation of skills (e.g., switching SCSRs) are proven ways to measure learning and changes in performance.
- Be enthusiastic about what you are presenting, and how you present it. Earn the respect of those you train by mastering the material.
- Finally, show that you care...participants respond best to the training when instructors demonstrate that they care about them by taking an interest in their safety and health. People can teach you how to elevate and enhance your training skills, but no one can teach how you care.

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# Module 2

## Emergency Response Plans

### Instructor's Guide

## **Purpose of the Module**

To increase the trainees' knowledge and understanding of key components of Emergency Evacuation Plans as required by Section 2 of the 2006 MINER Act.

## **Outline**

1. What is an emergency response plan?
2. Mine operator requirements
3. MSHA approval procedures
4. Escape first!
5. Key components of emergency response plans
6. Additional provisions

## **Lesson Objectives**

1. Describe the purpose of an emergency response plan (ERP)
2. Describe the two main provisions of ERP's
3. Describe how ERP's are adopted by MSHA
4. List and discuss four major components of ERP's

## Using the Module

- **Instructor PowerPoint slide presentation consists of bulleted talking points**
  - Familiarize yourself thoroughly with the detailed information in this lesson and elaborate on key points as needed.
  - Involve the group by following up on suggestions in the Instructor Notes.
- **Use site-specific examples whenever possible**
  - Introduce mine-specific examples when possible:
    - Use mine maps, emergency response plans, and corporate policies to tailor this information to your own mine.
- **Pre-test**
  - Have adequate tests available.
  - Allow 10 minutes for completion of test.
  - Each trainee takes his/her own test.
  - Explain purpose of pre-test: Pre-test will establish baseline of pre-existing knowledge.
  - Collect and score pre-test before completion of this module.

- **Present the Lesson**

- Using the slides, introduce the purpose of the module (slides 1-2)
- Review the lesson objectives (slide 3)
- Present the information in the module.

**At the end of the lesson administer the post-test**

- Allow 15 minutes for completion of the test.

**SLIDE 4**  
**EMERGENCY RESPONSE PLANS**

**SLIDE CONTENTS**

- *Definition*
- *Function*

<b>Important Points</b>	<b>Details of Instruction</b>	<b>Instructor Notes</b>
<b>Describe that an ERP is a mine-specific plan for emergency action that has 2 major functions</b>	<ul style="list-style-type: none"> <li>• A mine-specific written plan that describes how miners will respond during an emergency.</li> <li>• A mine-specific plan that details how mine management will track, and provide emergency assistance to miners that are escaping or trapped.</li> </ul>	<p>Ask the group if they have seen or reviewed their ERP</p> <p>Ask the group where their ERP is located</p>

**SLIDE 5**  
**CHARACTERISTICS OF ERP'S**

**SLIDE CONTENTS**

- *Mandatory*
- *Site-Specific*
- *Evacuation of Miners*
- *Maintenance of Miners*

<b>Important Points</b>	<b>Details of Instruction</b>	<b>Instructor Notes</b>
<b>Describe that concept of ERP's</b>	<ul style="list-style-type: none"> <li>• <b><i>Mandatory</i></b> Required by section 2 of MINER Act, 2006.</li> <li>• <b><i>Mine-specific</i></b> Each underground coal mine must have a mine-specific ERP that describes the procedures in effect at this mine.</li> <li>• <b><i>Evacuation procedures</i></b> Every effort must be made to evacuate the mine in an emergency. The ERP details the mine's specific procedures for evacuation.</li> <li>• <b><i>Maintenance procedures</i></b> Each ERP must detail the mines specific procedures to sustain and maintain trapped miners until they are rescued.</li> </ul>	Review Section2 of the MINER ACT to supplement describing the concepts of an ERP.

**SLIDE 6**  
**MINE OPERATOR REQUIREMENTS**

**SLIDE CONTENTS**

- *Submission Requirements*
- *Review Requirements*

<b>Important Points</b>	<b>Details of Instruction</b>	<b>Instructor Notes</b>
<b>Review submission and review requirements for ERP's.</b>	<ul style="list-style-type: none"> <li>• <b><i>Submission</i></b> By August 14, 2006 for existing mines and prior to opening of new mines.</li> <li>• <b><i>Review</i></b> Each underground mine must review ERP periodically to reflect: changes in operations in the mine, such as a change in systems of mining or mine layout, and relocation of escape ways; advances in technology; or other relevant changes. When changes to the ERP are required, MSHA approval must be obtained before the changes are implemented.</li> </ul>	Describe that following MSHA approval of ERP, MSHA will review the ERP at least every 6 months.

**SLIDE 7**  
**MSHA APPROVAL PROCEDURES**

**SLIDE CONTENTS**

- *After submitted considered adopted*
- *MSHA will notify mine operators of the ERP provisions found to be in compliance with the MINER Act*

<b>Important Points</b>	<b>Details of Instruction</b>	<b>Instructor Notes</b>
<b>Describe how the ERP is adopted and approved by MSHA</b>	<ul style="list-style-type: none"> <li>• <b><i>Adoption</i></b> The provisions of the ERP, except for the completion of training, shall be effective upon adoption by the operator and are subject to MSHA's subsequent approval. This means the company should proceed to implement the ERP.</li> <li>• <b><i>Compliance</i></b> As MSHA reviews the Plans, the Agency will send approval letters notifying mine operators of the ERP provisions found to be in compliance with the MINER Act. Approved ERP provisions are fully effective, and are also subject to enforcement. Inspectors will check for compliance during inspections.</li> </ul>	<p>Following submission, MSHA will recognize the ERP as the one adopted by the mining company for this mine.</p> <p>Upon review MSHA will advise companies of what parts of the plan are in compliance.</p> <p>Show MSHA acceptance letters for the ERP plan at this mine.</p>



**SLIDE 8**  
**ESCAPING THE MINE IS THE FIRST**  
**AND MOST IMPORTANT OBJECTIVE!**

**SLIDE CONTENTS**

- *Escape first*
- *Resources to escape*
- *Barricading is absolute last resort*
- *When to barricade*

Important Points	Details of Instruction	Instructor Notes
<p><b>Emphasize that escape is the first and highest priority!</b></p> <p><b>Describe what resources are available for escape</b></p> <p><b>Emphasize that barricading is the absolute last resort!</b></p>	<ul style="list-style-type: none"> <li>• <b><i>Escape</i></b> The first priority of all miners in an emergency is to escape first!</li> <li>• <b><i>Resources</i></b> Lifelines, tethers, SCSRs, and proper training provide are the essential tools for miners to evacuate through smoke or toxic atmospheres.</li> <li>• <b><i>Barricading</i></b> Barricading should be the last resort, only to be considered when primary, secondary and all other escapeways are impassable or blocked and there is absolutely no other option to consider for survival.</li> </ul>	<p><b><u>The #1, first priority in an emergency is to get out of the mine alive!</u></b></p> <p>Ask the group to describe what escape resources are available, and where they are located.</p>

**SLIDE 9**  
**KEY COMPONENTS OF EMERGENCY RESPONSE PLANS**

<b>SLIDE CONTENTS</b>		
<ul style="list-style-type: none"> <li>• <i>Post-accident communication</i></li> <li>• <i>Post-accident tracking</i></li> <li>• <i>Post-accident breathable air</i></li> <li>• <i>Additional SCSR's in escapeways</i></li> <li>• <i>Directional lifelines</i></li> <li>• <i>Training</i></li> <li>• <i>Coordination of key personnel</i></li> </ul>		
<b>Important Points</b>	<b>Details of Instruction</b>	<b>Instructor Notes</b>
<p><b>Describe the components of the ERP that deal with communication, tracking, breathable air, lifelines, training and coordination of personnel at this mine is set up.</b></p>	<ul style="list-style-type: none"> <li>• <b><i>Redundant Communication</i></b>                      Redundant means a 2-wired system, meaning if one wired system goes down, a second system could be used to communicate.</li> <li>Wires should be routed through separate entries or boreholes continuous to the surface.</li> <li>If a "wireless," system is used, no wired component of the system exists underground where it may be damaged by fire or explosion.</li> <li>In anthracite mines with one intake and one return air course the redundant hardwired systems may be placed in the same air course.</li> </ul>	<p>Go over each of these points using the ERP plan in effect at this mine.</p> <p>Ask the group to describe the tracking system in effect at this mine.</p> <p>Ask the group to describe the locations of breathable at this mine.</p> <p>Ask the group to describe the locations of all additional SCSR's at this mine.</p>

**SLIDE 10**  
**ADDITIONAL PROVISIONS**

**SLIDE CONTENTS**

- *Inflatable stoppings / quick deployable barricade*
- *Sufficient barricading materials / inflatable shelters*
- *Food / water*

<b>Important Points</b>	<b>Details of Instruction</b>	<b>Instructor Notes</b>
<b>Describe the location purpose and function of all additional provisions at this mine.</b>	<p>Two inflatable stoppings or other quick deployable barricade units should be provided within 6 months of becoming commercially available.</p> <p>Sufficient barricading materials to construct two air-tight barricades; the barricading material shall, at a minimum, include 4 brattice boards equal to the entry width, brattice cloth, sealant material, eight roof jacks, powered spad gun with sufficient spads, trowel and protective gloves, two claw hammers and nails, and 240 pounds of rock dust.</p>	Ask the group if they can think of any other provisions that would be feasible to store underground

**SLIDE 11**  
**ADDITIONAL PROVISIONS (CONTINUED)**

**SLIDE CONTENTS**

- *First aid materials*
- *Multi-gas detectors*
- *Materials that provide illumination*

<b>Important Points</b>	<b>Details of Instruction</b>	<b>Instructor Notes</b>
<b>Describe the location purpose and function of all additional provisions at this mine</b>		Ask the miners if they can think of any other provisions that would be feasible to store underground.

**SLIDE 12  
SUMMARY**

**SLIDE CONTENTS**

- *The ERP is a mandatory, mine-specific plan required by MSHA. MSHA approves ERP plans and reviews them every six months.*
- *The ERP describes how miners will act in an emergency.*
- *The ERP describes how management will track and provide emergency assistance to miners who are escaping or trapped.*
- *Escaping the mine is the first and highest priority and barricading is the absolute last resort!*

<b>Important Points</b>	<b>Details of Instruction</b>	<b>Instructor Notes</b>
<b>Review important points</b>		Ask the group for questions and/or explanations to material covered.

**SLIDE 13  
SUMMARY**

**SLIDE CONTENTS**

- ERP Plans address:
  - Post-accident communication
  - Post-accident tracking
  - Post-accident breathable air
  - Additional SCSRs in escapeways
  - Directional lifelines
  - Training
  - Coordinating key personnel

<b>Important Points</b>	<b>Details of Instruction</b>	<b>Instructor Notes</b>
<b>Review important points</b>		Ask the group for questions and/or explanations to material covered.

## APPENDIX A

### MODULE 2 EMERGENCY RESPONSE PLANS

#### PRE-TEST—INSTRUCTOR'S ANSWER KEY

1. Emergency Response Plans are required to address:
  - a. **The evacuation of endangered miners and maintenance of trapped miners**
  - b. The hiring of new miners and experienced miners
  - c. The rescue of trapped miners
  - d. Drilling of exploratory holes to find trapped miners
  
2. In the event of a mine emergency, which of the following options should be the primary objective of miners?
  - a. Barricading
  - b. Entering a refuge chamber
  - c. Finding an alternative escape route
  - d. **Evacuation**
  
3. If changes are made in a company's Emergency Response Plan (ERP), training must be provided to the miners within \_\_\_\_ days of MSHA's approval of the ERP changes?
  - a. 7 Days
  - b. 21 Days
  - c. **30 Days**
  - d. 45 Days
  
4. Training drills on donning and switching Self-Contained Self-Rescuers (SCSR's) must be conducted at least how often?
  - a. Monthly
  - b. **Quarterly**
  - c. Semi-annually
  - d. Annually

5. Post-Accident breathable air must be supplied to miners to last for at least how long?
- a. 24 Hours
  - b. 36 Hours
  - c. 48 Hours
  - d. 96 Hours**



**MODULE 2**  
**EMERGENCY RESPONSE PLANS**  
**POST-TEST—INSTRUCTOR'S ANSWER KEY**

1. **TRUE** or FALSE? If hardwired systems are used to meet the requirements for communication between the surface and underground, the system must be redundant.
2. **TRUE** or FALSE? Until post accident tracking technology becomes more reliable, ERPs allow the use of a dispatcher system to track persons underground.
3. At least how many SCSR's must be provided on the working section for each miner?
  - a. 1
  - b. 2**
  - c. 3
  - d. 4
4. SCSR's must be located within a \_\_\_ minute walking distance in escapeways.
  - a. 10
  - b. 15
  - c. 30**
  - d. 45
5. The point on directional cones on post-accident lifelines must point in what direction?
  - a. Inby**
  - b. Outby
  - c. Up
  - d. Down

6. One of the quarterly training drills on donning SCSR's shall be conducted in:
- a. The mine
  - b. Total darkness
  - c. *An atmosphere of artificial or simulated smoke***
  - d. An atmosphere of less than 1.0% Methane.
7. What other emergency supplies must be maintained in each working section?
- a. *Inflatable stoppings***
  - b. Food and water
  - c. First aid kits
  - d. All of the above
8. Emergency Response Plans are required to address:
- a. *The evacuation of endangered miners and maintenance of trapped miners***
  - b. The hiring of new miners and experienced miners
  - c. The rescue of trapped miners
  - d. Drilling of exploratory holes to find trapped miners
9. In the event of a mine emergency, which of the following options should be the primary objective of miners?
- a. Barricading
  - b. Entering a refuge chamber
  - c. Finding an alternative escape route
  - d. *Evacuation***

10. If changes are made in a company's Emergency Response Plan (ERP), training must be provided to the miners within \_\_\_\_ days of MSHA's approval of the ERP changes

- a. 7 Days
- b. 21 Days
- c. 30 Days**
- d. 45 Days

11. Training drills on donning and switching Self-Contained Self-Rescuers (SCSR's) must be conducted at least how often?

- a. Monthly
- b. Quarterly**
- c. Semi-annually
- d. Annually

12. Post-Accident breathable air must be supplied to miners to last for at least how long?

- a. 24 Hours
- b. 36 Hours
- c. 48 Hours
- d. 96 Hours**

## APPENDIX B

### Post-Training Evaluation Form

*Do You Understand Mine Emergencies?  
Are You Prepared for a Mine Emergency?*

1. Was the material covered relevant to your needs, interests, and expertise?  
Very Much So    To Some Extent    Needs More Work    No
  
2. Were the objectives of the course met?  
Very Much So    To Some Extent    Needs More Work    No
  
3. Were the instructors knowledgeable and competent in the subject area(s)?  
Very Much So    To Some Extent    Needs More Work    No
  
4. Was the course content logically organized?  
Very Much So    To Some Extent    Needs More Work    No
  
5. Was the length of the course adequate?  
Yes, keep as is    Not long enough    Shorten it
  
6. Was there an adequate opportunity for discussions and questions?  
Yes, keep as is    Allow more time for discussions and questions

7. Was the use of audiovisuals adequate and appropriate for the course materials?  
 Yes                       No (If no, why?)

8. Do you believe that today's training help you survive a mine emergency?  
 Very Much So     To Some Extent                       No

SUGGESTIONS/RECOMMENDATIONS TO IMPROVE THIS TRAINING:

## APPENDIX C

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