

Do You Understand Mine Emergencies?



Are You Prepared for a Mine
Emergency?

PARTICIPANT'S GUIDE

MODULE 6: BREATHABLE AIR SAFE HAVENS/REFUGE CHAMBERS

**PENN STATE MINER TRAINING PROGRAM
UNIVERSITY PARK, PA
2008**



MINER TRAINING PROGRAM

DO YOU UNDERSTAND MINE EMERGENCIES?

ARE YOU PREPARED FOR A MINE EMERGENCY?

Participant's Guide

MODULE 6: BREATHABLE AIR SAFE HAVENS/REFUGE CAMBERS

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Preface

The history of underground coal in the United States is notable for its successes and failures. In the distant past, coal 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.

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 and continuous safety improvement is our goal—a challenge to every miner.

Acknowledgements

This material was produced under grant number 00331235 from the Mine Safety and Health Administration, U.S. Department of Labor. It does not necessarily reflect the views or policies of the U.S. Department of Labor, nor does mention of trade names, commercial products, or organizations imply endorsement by the U.S. Government.

The training program, titled, *Do you understand mine emergencies? Are you prepared for a mine emergency?* is the result of a 2007/2008 MSHA, 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, and consists of an achieved webcast, titled, *Escape and survive*, and the training program referred to above.

These materials are available for a limited time at www.minerstownhall.org, or through the MSHA Academy at www.msha.gov.

We encourage you to help us improve this program. Please don't hesitate to contact us at 814.865.7472, or by contacting any of the authors (See Appendix B).

INTRODUCTION

Purpose

The training program, titled, *Do you understand mine emergencies? Are you prepared for a mine emergency?* was prepared to help miners deal with mine emergencies. The purpose of the training program is to improve your capability to survive a mine emergency, primarily through mine emergency preparedness (MEP). Surviving an emergency depends on many factors, such as size of the mine, location of miners, the scope of the incident, the amount of energy released, the effectiveness of emergency plans, training and good decision-making. Some factors in an emergency can't be controlled. What you can control is your knowledge and skills in emergency preparedness and response. By improving your knowledge of emergency principles, emergency skills, and decision-making capabilities, more miners will be able to survive mine emergencies.

Format/content

This training program uses Internet webcast technology and CD ROM based PowerPoint presentations, an Instructor's and Participant's Guide. The webcast can be accessed through the Internet at www.minerstownhall.org or played from a CD. During the webcast, various expert panelists will comment on mine emergency subjects. Informational slides appear to the right of the speakers to summarize most of the main points. In addition, a series of video clips are "rolled in" at the appropriate times. These 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
- Self-contained self-rescuers
- Emergency communications and miner tracking
- Escape and evacuation
- Breathable air safe havens/refuge chambers

Each module has a pre-test and a post-test (See Appendix A). You may be given a short test before each lesson to evaluate your knowledge of key points. You may also be given a slightly longer test at the conclusion of the module to evaluate if you grasped the key concepts of the module. If you missed some questions on the pre-test, pay close attention to those parts of the training module.

A few tips to help you with the learning process:

- Take notes
- Ask questions
- Apply your training to your mine
- Talk with other miners
- Think about the layout of your mine during the training
- Make suggestions to improve training
- Ask yourself (and discuss with other miners): “If an emergency were to occur at my mine, how would I apply these principles to escape or evacuate?”

Application

Knowing how to react in an emergency is critical to your survival. Coal mining is serious business! Training is also serious business! Take your training very seriously! Pay attention to training on mine emergencies, and take it very seriously! Thoroughly prepare yourself by finding out about your mine’s most important mine emergency preparedness procedures. In a real emergency your training and your knowledge could help save your life. A few tips to help you think about how to react to mine emergencies:

- Know the contents of your mine Emergency Response Plan.
- Know the contents of your emergency escape and fire-fighting plans.
- Know the layout of your mine and where escapeways, directional lifelines, emergency supplies, extra SCSR’s and refuge chambers are located.
- Know how to report an emergency and provide accurate information.
- Know how to don and switch SCSR units.
- Know where to meet at the first sign of an emergency.
- Know how your mine tracking system works.
- Know how refuge chambers operate.
- Know where you are at all times in the mine, and how to escape from where you are located.

Of course, the best solution to mine emergencies is to have no emergencies! Your daily efforts to work safely, play by the rules, report problems and take care of yourself and your co-workers can go a long way to make “no emergencies” a reality. You must be prepared however for the unexpected and emergencies are unexpected.

Best wishes to you in your training and your mining career. Thank you for all you do to make mining a safer place to work! Never let a chance for something that could save your life pass you by. Learn all you can about mine emergency response! What you know could save your life, or help someone else save yours!

Module 6

Breathable Air Safe Havens/Refuge Chambers

Participant's Guide

Purpose of the Module

Increase the knowledge and skills of the miner to understand breathable air safe havens/refuge chambers, and their role in the escape, evacuation, survival and rescue phases of mine emergency/disaster response.

Pre-test

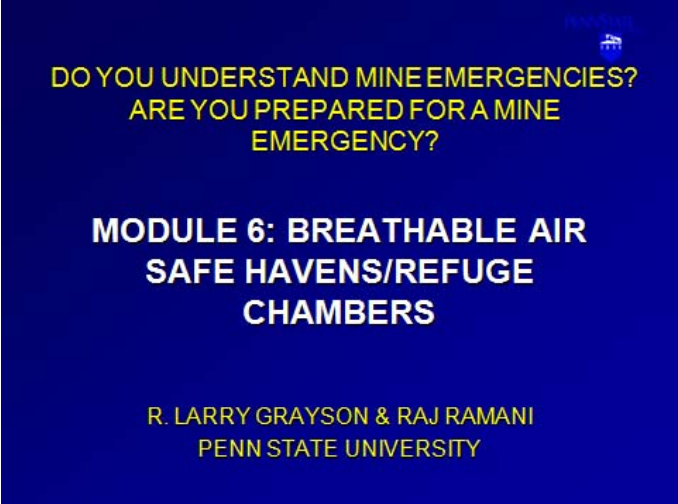
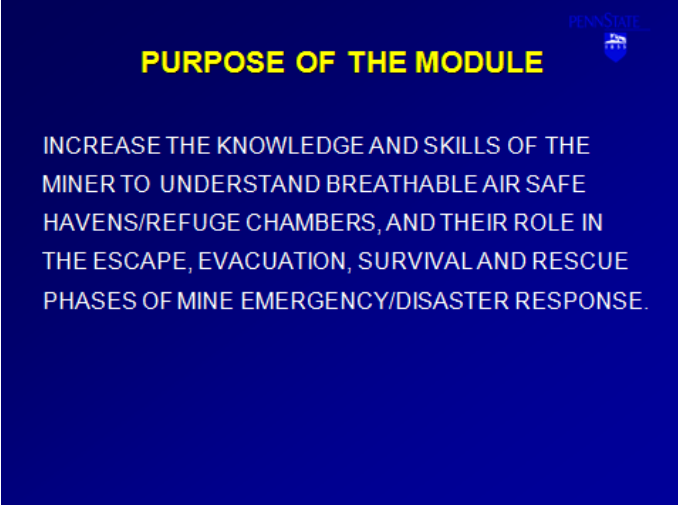
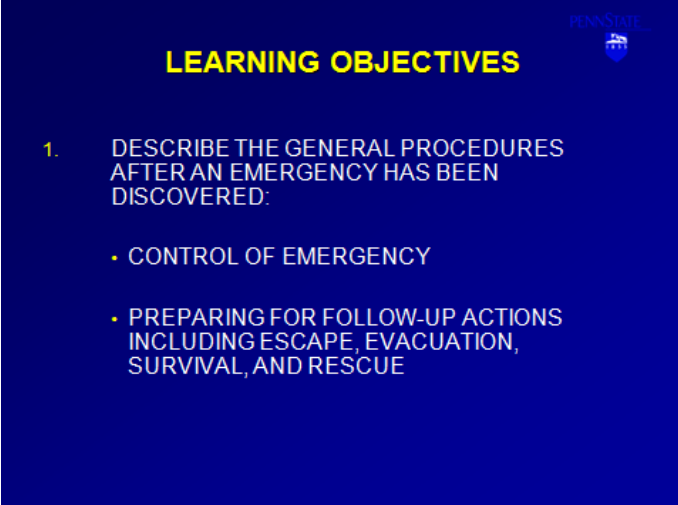
Following the introduction of this module, your instructor will ask you to complete a pre-test. The pre-test will demonstrate your knowledge and understanding of this topic.




Post-test

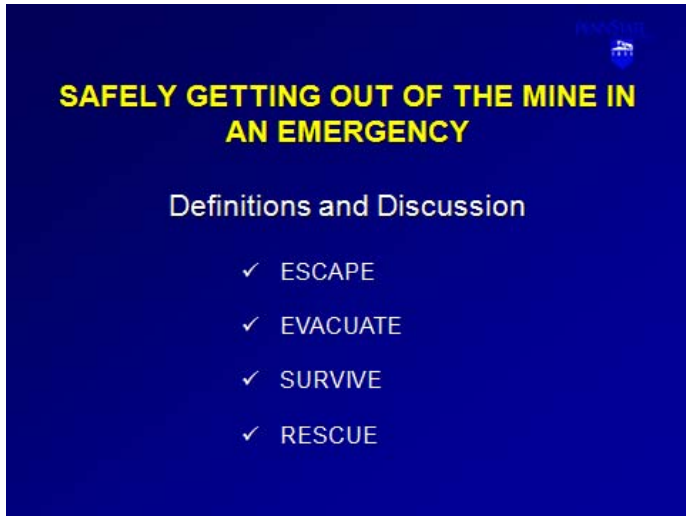
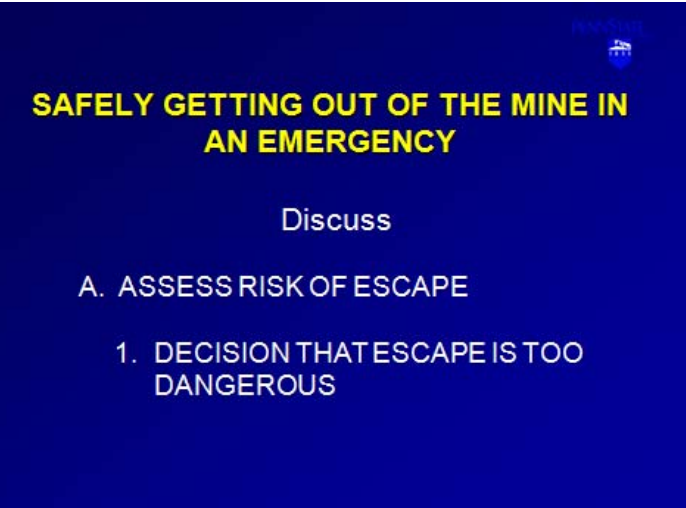
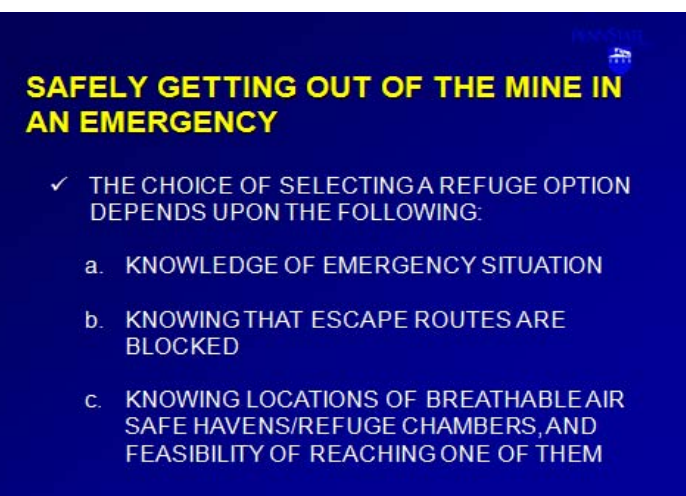
After completing this module, the instructor will ask you to complete a post-test. By comparing the group scores between the pre- and post-test, the instructor can demonstrate whether the training was effective.

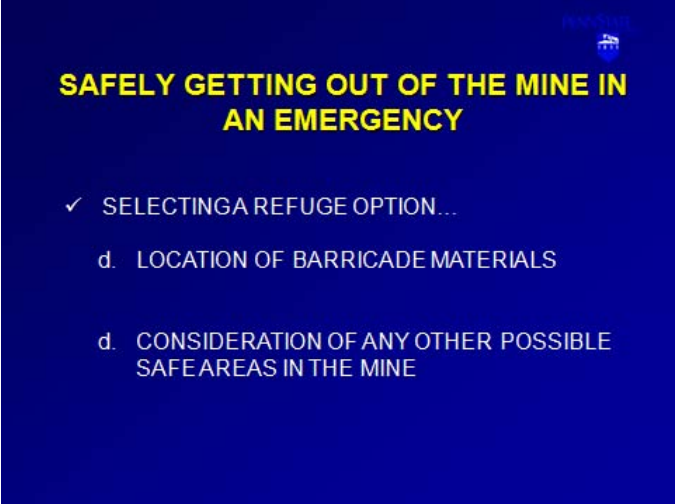
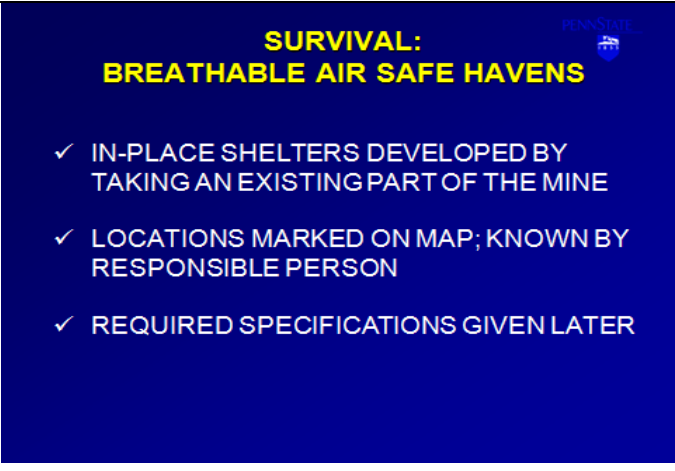
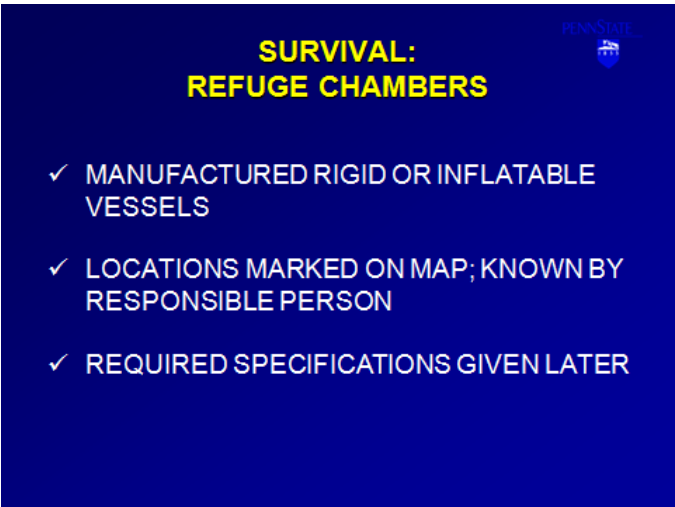
Evaluation

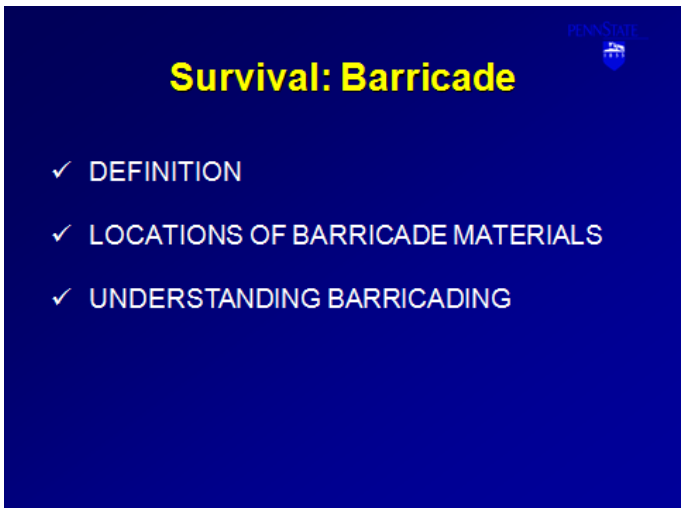
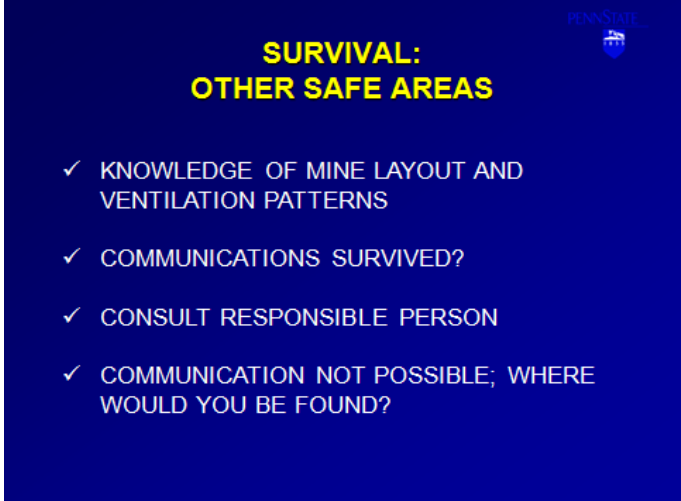
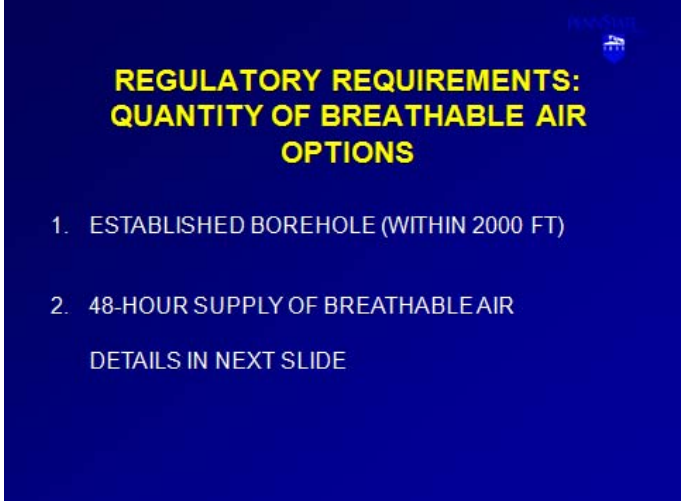
Following completion of the course, you will be asked to provide feedback to the instructor on whether you believe the course achieved its purpose. You will also be asked several questions regarding the design, and implementation of the course. An evaluation form for will be used for this purpose.

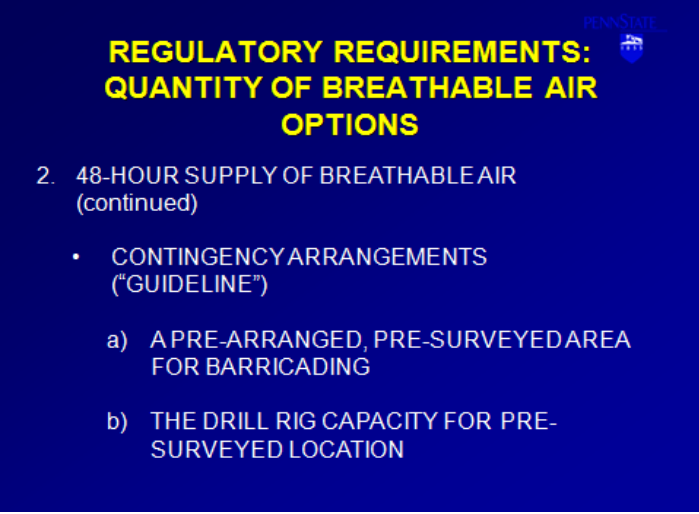
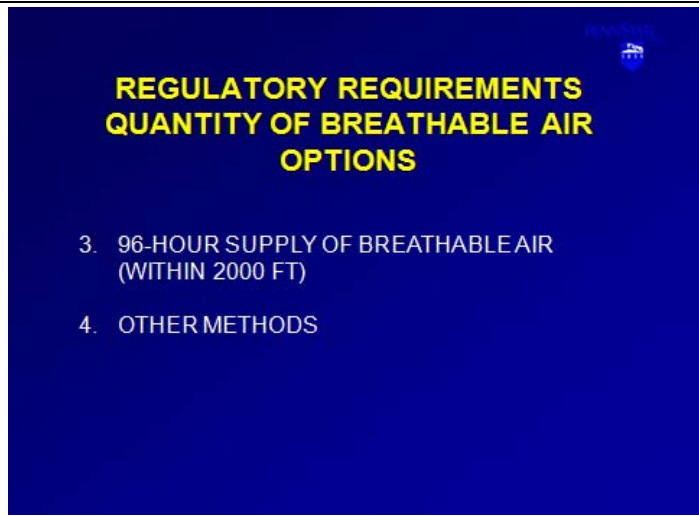
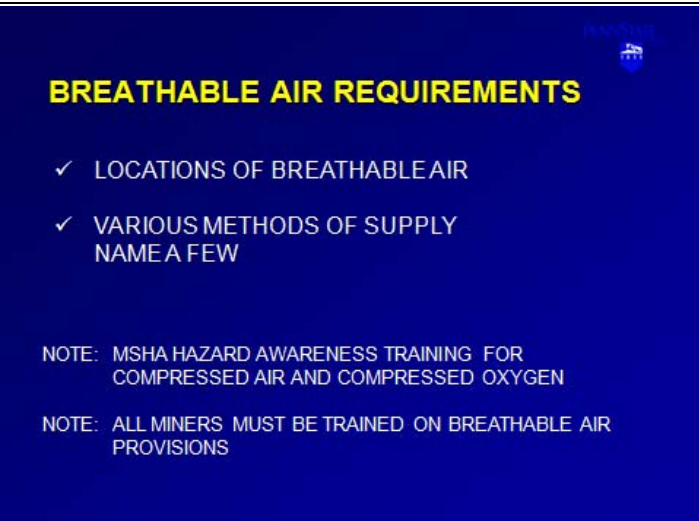
Introduction	Notes
 <p>DO YOU UNDERSTAND MINE EMERGENCIES? ARE YOU PREPARED FOR A MINE EMERGENCY?</p> <p>MODULE 6: BREATHABLE AIR SAFE HAVENS/REFUGE CHAMBERS</p> <p>R. LARRY GRAYSON & RAJ RAMANI PENN STATE UNIVERSITY</p>	
 <p>PURPOSE OF THE MODULE</p> <p>INCREASE THE KNOWLEDGE AND SKILLS OF THE MINER TO UNDERSTAND BREATHABLE AIR SAFE HAVENS/REFUGE CHAMBERS, AND THEIR ROLE IN THE ESCAPE, EVACUATION, SURVIVAL AND RESCUE PHASES OF MINE EMERGENCY/DISASTER RESPONSE.</p>	
 <p>LEARNING OBJECTIVES</p> <p>1. DESCRIBE THE GENERAL PROCEDURES AFTER AN EMERGENCY HAS BEEN DISCOVERED:</p> <ul style="list-style-type: none"> • CONTROL OF EMERGENCY • PREPARING FOR FOLLOW-UP ACTIONS INCLUDING ESCAPE, EVACUATION, SURVIVAL, AND RESCUE 	

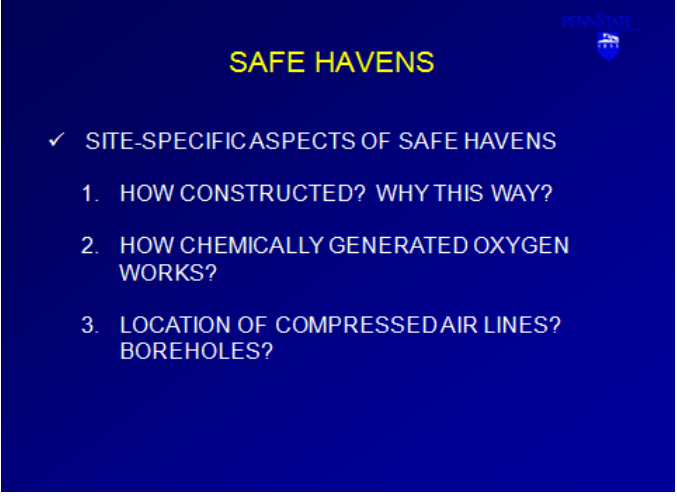
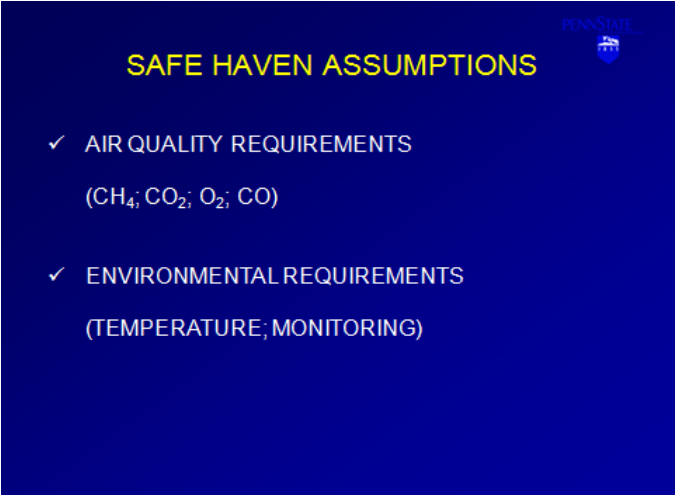
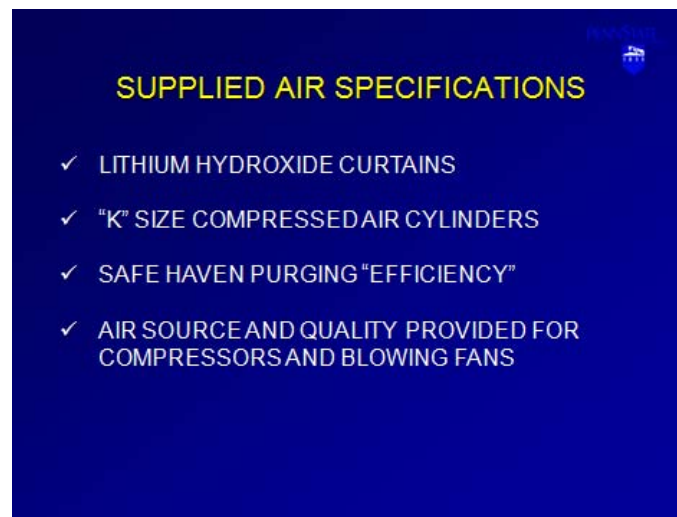
Introduction	Notes
<p style="text-align: right;"><small>PENNSTATE</small> </p> <p style="text-align: center;">LEARNING OBJECTIVES</p> <p>2. DESCRIBE THE TYPES OF SURVIVAL PROCEDURES IF ONE CANNOT ESCAPE OR EVACUATE:</p> <ul style="list-style-type: none"> • BREATHABLE AIR SAFE HAVENS OR REFUGE CHAMBERS • MOVE TO SAFER AREAS OF THE MINE • PAST PROCEDURES OF BARRICADING 	
<p style="text-align: right;"><small>PENNSTATE</small> </p> <p style="text-align: center;">LEARNING OBJECTIVES</p> <p>3. DESCRIBE THE REGULATORY REQUIREMENTS REGARDING BREATHABLE AIR SAFE HAVENS OR REFUGE CHAMBERS</p> <ul style="list-style-type: none"> • CONSTRUCTION • PROVISIONS INSIDE THE SAFE HAVEN OR CHAMBER • LOCATION OF THE SAFE HAVENS OR CHAMBERS • TIME PERIOD APPROVED FOR SAFE HAVENS OR REFUGE CHAMBERS, ETC. 	
<p style="text-align: right;"><small>PENNSTATE</small> </p> <p style="text-align: center;">LEARNING OBJECTIVES</p> <p>4. DISCUSS THE ROLE OF BREATHABLE AIR SAFE HAVENS OR REFUGE CHAMBERS AND THE CONSEQUENCES OF DECIDING TO SEEK REFUGE</p> <p>5. DISCUSS THE IMPORTANCE OF THE MINER'S PERSONAL DECISION/ROLE IN THE DECISION TO SEEK REFUGE</p>	

Important Points	Notes
 <p>SAFELY GETTING OUT OF THE MINE IN AN EMERGENCY</p> <p>Definitions and Discussion</p> <ul style="list-style-type: none"> ✓ ESCAPE ✓ EVACUATE ✓ SURVIVE ✓ RESCUE 	<p>Be prepared to discuss the difference between escape and survive.</p> <p>List some mine design features that promote evacuation, escape and survival...some possible responses:</p>
 <p>SAFELY GETTING OUT OF THE MINE IN AN EMERGENCY</p> <p>Discuss</p> <p>A. ASSESS RISK OF ESCAPE</p> <p>1. DECISION THAT ESCAPE IS TOO DANGEROUS</p>	<p>Why is escape the first priority?</p>
 <p>SAFELY GETTING OUT OF THE MINE IN AN EMERGENCY</p> <ul style="list-style-type: none"> ✓ THE CHOICE OF SELECTING A REFUGE OPTION DEPENDS UPON THE FOLLOWING: <ul style="list-style-type: none"> a. KNOWLEDGE OF EMERGENCY SITUATION b. KNOWING THAT ESCAPE ROUTES ARE BLOCKED c. KNOWING LOCATIONS OF BREATHABLE AIR SAFE HAVENS/REFUGE CHAMBERS, AND FEASIBILITY OF REACHING ONE OF THEM 	<p>Think about how you would get information to make good decisions in an emergency</p>

Important Points	Notes
 <p>SAFELY GETTING OUT OF THE MINE IN AN EMERGENCY</p> <ul style="list-style-type: none"> ✓ SELECTING A REFUGE OPTION... d. LOCATION OF BARRICADE MATERIALS d. CONSIDERATION OF ANY OTHER POSSIBLE SAFE AREAS IN THE MINE 	<p>Be prepared to ID the location of your safe havens.</p> <p>Be prepared to show the instructor the locations of refuge chambers on the mine map</p>
 <p>SURVIVAL: BREATHABLE AIR SAFE HAVENS</p> <ul style="list-style-type: none"> ✓ IN-PLACE SHELTERS DEVELOPED BY TAKING AN EXISTING PART OF THE MINE ✓ LOCATIONS MARKED ON MAP; KNOWN BY RESPONSIBLE PERSON ✓ REQUIRED SPECIFICATIONS GIVEN LATER 	<p>Be prepared to describe the location of your safe havens (if applicable).</p> <p>Be prepared to point out the locations of safe havens on the mine map (if applicable).</p>
 <p>SURVIVAL: REFUGE CHAMBERS</p> <ul style="list-style-type: none"> ✓ MANUFACTURED RIGID OR INFLATABLE VESSELS ✓ LOCATIONS MARKED ON MAP; KNOWN BY RESPONSIBLE PERSON ✓ REQUIRED SPECIFICATIONS GIVEN LATER 	<p>Be prepared to point out the locations of refuge chambers on the mine map (if applicable).</p> <hr/>


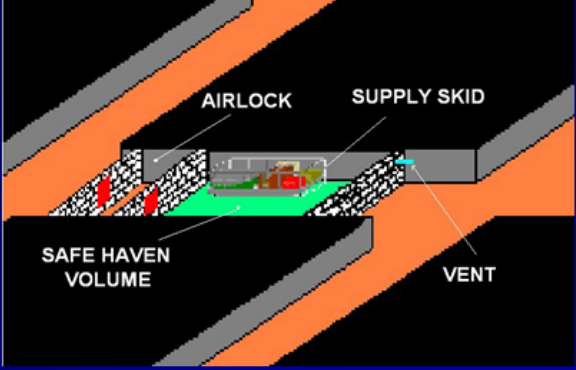
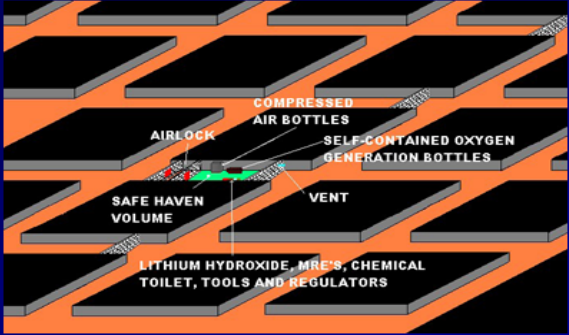
Important Points	Notes
 <p>Survival: Barricade</p> <ul style="list-style-type: none"> ✓ DEFINITION ✓ LOCATIONS OF BARRICADE MATERIALS ✓ UNDERSTANDING BARRICADING 	<p>Be prepared to discuss how your supplies are stored and where</p> <hr/>
 <p>SURVIVAL: OTHER SAFE AREAS</p> <ul style="list-style-type: none"> ✓ KNOWLEDGE OF MINE LAYOUT AND VENTILATION PATTERNS ✓ COMMUNICATIONS SURVIVED? ✓ CONSULT RESPONSIBLE PERSON ✓ COMMUNICATION NOT POSSIBLE; WHERE WOULD YOU BE FOUND? 	<p>Be prepared to locate escapeways on the mine map</p>
 <p>REGULATORY REQUIREMENTS: QUANTITY OF BREATHABLE AIR OPTIONS</p> <ol style="list-style-type: none"> 1. ESTABLISHED BOREHOLE (WITHIN 2000 FT) 2. 48-HOUR SUPPLY OF BREATHABLE AIR <p>DETAILS IN NEXT SLIDE</p>	<hr/>

Important Points	Notes
 <p>REGULATORY REQUIREMENTS: QUANTITY OF BREATHABLE AIR OPTIONS</p> <p>2. 48-HOUR SUPPLY OF BREATHABLE AIR (continued)</p> <ul style="list-style-type: none"> • CONTINGENCY ARRANGEMENTS ("GUIDELINE") <ul style="list-style-type: none"> a) A PRE-ARRANGED, PRE-SURVEYED AREA FOR BARRICADING b) THE DRILL RIG CAPACITY FOR PRE- SURVEYED LOCATION 	
 <p>REGULATORY REQUIREMENTS QUANTITY OF BREATHABLE AIR OPTIONS</p> <p>3. 96-HOUR SUPPLY OF BREATHABLE AIR (WITHIN 2000 FT)</p> <p>4. OTHER METHODS</p>	
 <p>BREATHABLE AIR REQUIREMENTS</p> <ul style="list-style-type: none"> ✓ LOCATIONS OF BREATHABLE AIR ✓ VARIOUS METHODS OF SUPPLY NAME A FEW <p>NOTE: MSHA HAZARD AWARENESS TRAINING FOR COMPRESSED AIR AND COMPRESSED OXYGEN</p> <p>NOTE: ALL MINERS MUST BE TRAINED ON BREATHABLE AIR PROVISIONS</p>	<p>Be prepared to ID the location of additional breathable air.</p>

Important Points	Notes
 <p>SAFE HAVENS</p> <ul style="list-style-type: none"> ✓ SITE-SPECIFIC ASPECTS OF SAFE HAVENS <ol style="list-style-type: none"> 1. HOW CONSTRUCTED? WHY THIS WAY? 2. HOW CHEMICALLY GENERATED OXYGEN WORKS? 3. LOCATION OF COMPRESSED AIR LINES? BOREHOLES? 	<p>Be prepared to discuss how you would enter the safe haven and the location of oxygen cylinders.</p> <p>Be prepared to ID the oxygen generation system, and how to tell if it is functional.</p> <p>Be prepared to discuss how to tell if the compressed air system is functional.</p>
 <p>SAFE HAVEN ASSUMPTIONS</p> <ul style="list-style-type: none"> ✓ AIR QUALITY REQUIREMENTS (CH₄; CO₂; O₂; CO) ✓ ENVIRONMENTAL REQUIREMENTS (TEMPERATURE; MONITORING) 	<p>Be prepared to discuss the borehole system functions.</p>
 <p>SUPPLIED AIR SPECIFICATIONS</p> <ul style="list-style-type: none"> ✓ LITHIUM HYDROXIDE CURTAINS ✓ "K" SIZE COMPRESSED AIR CYLINDERS ✓ SAFE HAVEN PURGING "EFFICIENCY" ✓ AIR SOURCE AND QUALITY PROVIDED FOR COMPRESSORS AND BLOWING FANS 	

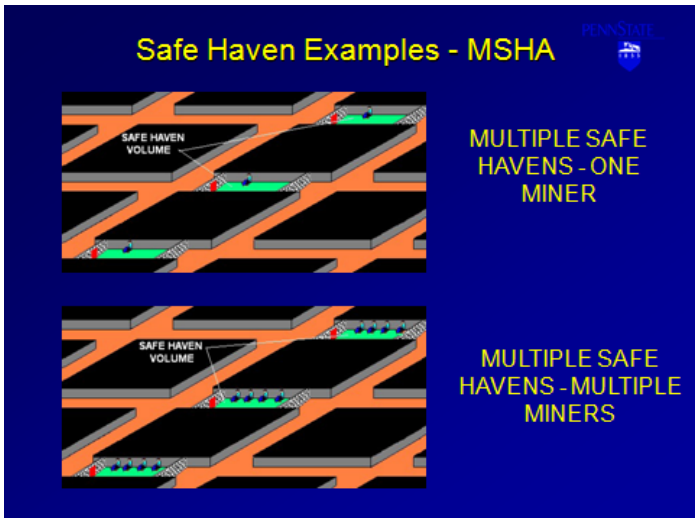
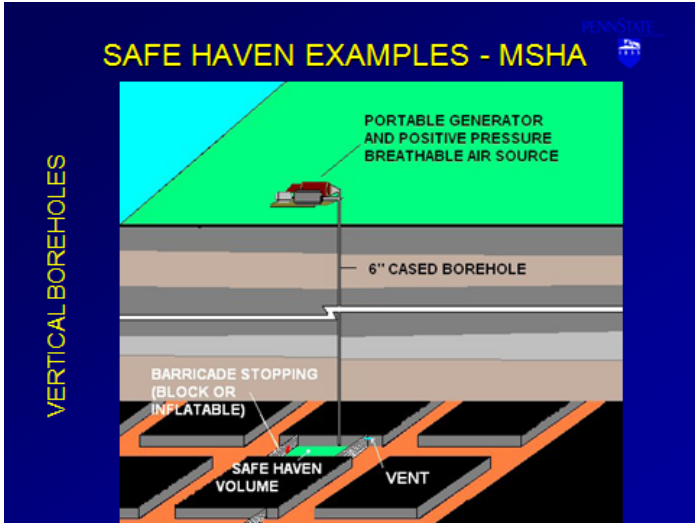
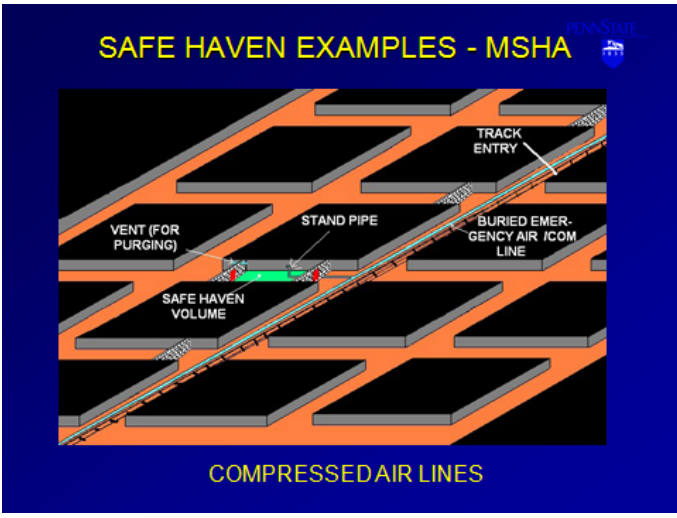
Important Points	Notes
<p data-bbox="370 289 717 321">EMERGENCY SUPPLIES</p> <ul style="list-style-type: none"> <li data-bbox="378 363 613 388">✓ CHEMICAL TOILET <li data-bbox="378 415 605 441">✓ BRATTICE CLOTH <li data-bbox="378 468 711 493">✓ TOOLS/REPAIR MATERIALS <li data-bbox="378 520 657 546">✓ READY TO EAT MEALS <li data-bbox="378 573 646 598">✓ VALVE REGULATORS 	
<p data-bbox="313 800 782 863">REFUGE CHAMBERS APPROVED/PENDING APPROVAL</p> <ul style="list-style-type: none"> <li data-bbox="313 909 600 934">✓ CHEMBIO SHELTER, INC. <li data-bbox="313 961 589 987">✓ DRAEGER SAFETY, INC. <li data-bbox="313 1014 706 1039">✓ KENNEDY METAL PRODUCTS, INC. <li data-bbox="313 1066 787 1129">✓ STRATA PRODUCTS (USA), INC. (PENDING MSHA ELECTRICAL APPROVAL) <li data-bbox="313 1150 682 1176">✓ MODERN MINE SAFETY SUPPLY 	
<p data-bbox="362 1360 722 1423">CHEMBIO SHELTER, INC. LIFE SHELTER</p> 	

Important Points	Notes
<p data-bbox="365 289 719 321">DRAEGER SAFETY, INC.</p>  	
<p data-bbox="282 814 799 846">KENNEDY METAL PRODUCTS, INC.</p>   <p data-bbox="440 1037 565 1108">Portable Assembled Unit</p>	
<p data-bbox="310 1346 776 1377">STRATA PRODUCTS (USA), INC.</p> 	

Important Points	Notes
<p data-bbox="289 289 764 321">MODERN MINE SAFETY SUPPLY</p> 	
<p data-bbox="289 814 764 846">SAFE HAVEN EXAMPLES - MSHA</p>  <p data-bbox="418 1241 657 1272">OXYGEN CYLINDERS</p>	
<p data-bbox="305 1371 781 1402">SAFE HAVEN EXAMPLES - MSHA</p>  <p data-bbox="350 1755 748 1787">CHEMICALLY GENERATED OXYGEN</p>	

Important Points

Notes



Important Points	Notes
 <p>NIOSH TESTING PROGRAM</p> <ul style="list-style-type: none"> ✓ GOAL OF NIOSH TESTING: PROVIDE EVALUATION INFORMATION TO MINERS, MANUFACTURERS, AND MSHA 	
 <p>RISK OF SEEKING REFUGE OVER ESCAPE EMPHASIS</p> <ul style="list-style-type: none"> ✓ LAST RESORT! ✓ WEIGHING THE RISKS ✓ IMPORTANCE OF GOOD, EARLY COMMUNICATION 	
 <p>JUDGMENT AND RISKS</p> <ul style="list-style-type: none"> ✓ DECISION: JUDGMENT ✓ BEST APPROACH TO THE DECISION ✓ RISK AND THE MINER ACT – NO GUARANTEE 	<hr/>

Important Points	Notes
<p data-bbox="321 310 779 342">SAFE WORK = REDUCED RISK</p> <ul style="list-style-type: none"> <li data-bbox="250 422 716 474">✓ PREVENTION OF MAJOR HAZARDS => FAITHFUL EXECUTION OF JOBS <li data-bbox="250 531 802 583">✓ IF EMERGENCY SITUATIONS DO NOT OCCUR, THEN YOU WON'T BE THREATENED 	
<p data-bbox="290 842 808 873">STRESS IN MINING EMERGENCIES</p> <ul style="list-style-type: none"> <li data-bbox="302 919 737 1052">✓ STRESS <ul style="list-style-type: none"> <li data-bbox="337 974 737 999">○ MENTAL AND PHYSICAL EFFECTS <li data-bbox="337 1026 618 1052">○ THINK OPTIMISTICALLY 	
<p data-bbox="342 1388 756 1419">IMPORTANCE OF TRAINING</p> <ul style="list-style-type: none"> <li data-bbox="245 1461 862 1709">✓ NEED IMPROVED SKILLS, THROUGH TRAINING, ON: <ul style="list-style-type: none"> <li data-bbox="280 1524 558 1549">○ ESCAPING IN SMOKE <li data-bbox="280 1564 711 1589">○ SUPERVISORS' DECISION-MAKING <li data-bbox="280 1604 805 1629">○ RESPONSIBLE PERSON DECISION-MAKING <li data-bbox="280 1644 829 1669">○ EFFECTIVE TEAMWORK AND TEAM-BUILDING <li data-bbox="280 1684 553 1709">○ LEADERSHIP SKILLS 	<p data-bbox="932 1356 1308 1461">Can you identify any additional training needs in decision-making?</p>

Important Points	Notes
<p style="text-align: center;">SUMMARY</p> <ul style="list-style-type: none"> ✓ YOUR KNOWLEDGE AND SKILLS AND YOUR UNDERSTANDING OF THE AVAILABLE OPTIONS DURING A MINE EMERGENCY/DISASTER IS THE KEY TO SURVIVAL. ✓ YOU MUST ASSESS THE RISK CREATED BY THE EMERGENCY/DISASTER. ✓ IF YOU DECIDE THAT THE RISK OF ESCAPE OR EVACUATION IS TOO GREAT, YOU NEED TO MAKE A CHOICE BETWEEN BREATHABLE AIR SAFE HAVENS/REFUGE CHAMBERS AND BARRICADING. 	
<p style="text-align: center;">SUMMARY</p> <ul style="list-style-type: none"> ✓ YOU MUST RELY ON YOUR KNOWLEDGE OF THE MINE LAYOUT AND VENTILATION PATTERNS, COMMUNICATIONS WITH THE RESPONSIBLE PERSON AND YOUR BEST JUDGMENT. ✓ EMERGENCY SCENARIOS WILL HAVE SIGNIFICANT RISK ASSOCIATED WITH THEM AND IN THE END YOU MUST MAKE THE DECISION WITH YOUR FELLOW MINERS. ✓ THE KEY TO NOT HAVING TO MAKE THIS TYPE OF A DECISION IS PREVENTION. 	

APPENDIX A

MODULE 6

BREATHABLE AIR SAFE HAVENS/REFUGE CHAMBERS PRE-TEST

This pre-test consists of three multiple-choice and two True or False questions. Each multiple-choice question is followed by four choices. Circle the letter that indicates the best choice.

1. Which of the following would not be especially helpful in selecting a refuge option?
 - a. Access to drinking water
 - b. Knowledge of blocked escape routes
 - c. Information about the emergency situation
 - d. Knowledge of the location of breathable air safe havens

2. A good barricade would be a wall constructed of concrete blocks or brattice cloth/plastic and fastened to the ribs, roof, and floor to create a _____ which isolates miners from contaminated air.
 - a. safe haven
 - b. breathable atmosphere
 - c. warm area
 - d. ventilated area

3. What mine design feature that would not be especially helpful for escape, evacuation and survival?
 - a. The number of the track entries
 - b. State of the art tracking system
 - c. Safe haven/rescue chambers
 - d. Maintaining the escape way

4. Barricading is the last option of a last resort.
 - a. True
 - b. False

5. The location of breathable air safe havens must be shown on an escape map.
 - a. True
 - b. False

MODULE 6

BREATHABLE AIR SAFE HAVENS/REFUGE CHAMBERS POST-TEST

This post-test consists of six multiple-choice and four True or False questions. Each multiple-choice question is followed by four choices. Circle the letter that indicates the best choice.

1. Which of the following would not be especially helpful in selecting a refuge option?
 - a. Access to drinking water
 - b. Knowledge of blocked escape routes
 - c. Information about the emergency situation
 - d. Knowledge of the location of breathable air safe havens

2. A good barricade would be a wall constructed of concrete blocks or brattice cloth/plastic and fastened to the ribs, roof, and floor to create a_____which isolates miners from contaminated air.
 - a. safe haven
 - b. breathable atmosphere
 - c. warm area
 - d. ventilated area

3. What mine design feature that would not be especially helpful for escape, evacuation and survival?
 - a. The number of the track entries
 - b. State of the art tracking system
 - c. Safe haven/rescue chambers
 - d. Maintaining the escape way

4. A key factor in seeking refuge over escape is good, early communication.
 - a. True
 - b. False

5. Barricading is the last option of a last resort.
 - a. True
 - b. False

6. The location of breathable air safe havens must be shown on an escape map.
 - a. True
 - b. False

7. Each miner should be provided a 96-hour supply of breathable air located within _____ feet of the working section.
- a. 500
 - b. 1000
 - c. 1500
 - d. 2000
8. Emergency supplies **do not** include
- a. a chemical toilet.
 - b. brattice cloth.
 - c. spare transportation.
 - a. ready to eat meals.
9. Decision making skills can be improved through training in smoke, supervisory training and responsible person training.
- a. True
 - b. False
10. The key to not having to deal with an emergency is prevention, and the best way to achieve it is
- a. any type of training.
 - b. faithfully executing all aspects of your job.
 - c. having the best equipment.
 - d. having a safety program.

APPENDIX B

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