2024 Metal and Nonmetal Mine Rescue Contest Rules

Visit the Mine Safety and HealthAdministration Web site at
www.msha.gov

PREFACE

This booklet was prepared for mining industry instructors, MSHA instructors and inspectors to train mine rescue teams, judges, and contest personnel in procedures for a mine rescue contest.

Reference to specific brands, equipment, or trade names in this document is made to facilitate understanding and does not imply endorsement.

MISSION STATEMENT

The Metal and Nonmetal National and Regional Contests serve as training tools to improve the skills required to respond to a mine emergency. These competitions serve to strengthen cooperation between mining companies, equipment manufacturers, and Federal and State agencies to enhance mine rescue preparedness. This Contest Rule Book establishes procedures and rules that serve to guide the rescue teams in actual situations.

ACKNOWLEDGMENTS

A special thanks to the Metal and Nonmetal Rules Committee for their valuable assistance in preparing this booklet. The aforementioned Rules Committee is comprised of representatives from the following organizations:

Central Kentucky Mine Rescue Association

Central Mine Rescue Unit

Georgia Mine Rescue Association

Kansas Mine Rescue Association

Mine Safety and Health Administration

Missouri Mine Rescue Association

Nevada Mine Rescue Association

Northern Mine Rescue Association

Rocky Mountain Mine Rescue Association

Stillwater Mine Rescue Association

Southern Mine Rescue Association

Southwestern Regional Mine Rescue Association

Southwestern Wyoming Mutual Aid Association

Tennessee Mine Rescue Association

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PREVIOUS NATIONAL CHAMPIONS

MINE RESCUE FIELD CONTEST

2022	**The Doe Run Company**, Maroon Team, The Doe Run Company, Viburnum, Missouri
2018	**Genesis Blue Team**, Genesis Alkali, Green River, Wyoming
2016	**Nuclear Waste Partnership LLC**, WIPP Blue Team, Carlsbad, New Mexico
2014	**The Doe Run Company**, Maroon Team, The Doe Run Company, Viburnum, Missouri
2013	**Newmont Mining**, Carlin Team, Newmont Mining, Elko, Nevada
2010	**The Doe Run Company**, Maroon Team, The Doe Run Company, Viburnum, Missouri
2008	**FMC Alkali Chemicals**, Red Team, FMC Corporation, Green River, Wyoming
2006	**FMC Westvaco Mine**, White Team, FMC Corporation, Green River, Wyoming
2004	**Big Island Mine**, White Team, OCI of Wyoming, L.P., Green River, Wyoming
2002	**FMC Westvaco Mine**, FMC 1, FMC Corporation, Green River, Wyoming
2000	**Big Island Mine**, OCI Blue Team, OCI of Wyoming, L.P., Green River, Wyoming
1998	**FMC Mine**, Red Team, FMC Corporation, Green River, Wyoming
1996	**Big Island Mine**, White Team, OCI of Wyoming, L.P., Green River, Wyoming
1994	**Waste Isolation Pilot Project**, Blue Team, Westinghouse Electric Corp. - Carlsbad, New Mexico
1992	**Big Island Mine**, White Team, Rhone Poulenc of Wyoming, Green River, Wyoming
1990	**Magmont Mine Team**, Cominco American, Bixby, Missouri
1988	**Homestake Mine**, Gold Team, Homestake Mining Company, Lead, South Dakota
1986	**Big Island Mine**, White Team, Stauffer Chemical Company, Green River, Wyoming
1984	**Texasgulf Mine**, Gold Team, Texasgulf Chemicals Company, Granger, Wyoming
1982	**Big Island Mine**, Blue Team, Stauffer Chemical Company, Green River, Wyoming

1980 **Lisbon Mine Team**, Rio Algom Corp. - Moab, UT

1978 **Jefferson Island Mine Team**, Diamond Crystal Salt Co., New Iberia, Louisiana

1976 **Magmont Mine Team**, Cominco American Bixby, Missouri (Single-Level Contest)

1976 **Magmont Mine Team**, Cominco American Bixby, Missouri (Multi-Level Contest)

1975 **Big Island Mine**, White Team, Stauffer Chemical Co., Green River, Wyoming

1973 **Grand Saline Mine Team**, Morton Salt, Division of Morton Norwich Products, Inc. - Grand Saline, Texas

TECHNICIAN TEAM CONTEST

2022 **Sisecam**, Blue Team, Green River, Wyoming

2018 BG-4 – **Genesis Teal**, Genesis Alkali, Green River, Wyoming

2018 BioPak 240 - **Black River Bandits**, Carmeuse Lime and Stone, Butler, Kentucky

2016 BG-4 - **Doe Run Gray Team**, The Doe Run Company, Viburnum, Missouri

2016 BioPak 240 - **Turquoise Ridge Regulators**, Barrick, Golconda, Nevada

2014 **OCI Blue Team**, OCI of Wyoming, Green River, Wyoming

2013 **Henderson Operations**, Henderson Red Team, Climax Molybdenum, Empire, Colorado

2010 **FMC Westvaco Mine**, White Team, FMC Corporation, Green River, Wyoming

BENCHMAN'S CONTEST

2022 **Zach Boylen**, (BG-4), Sisecam White Team, Green River, Wyoming

Steven Smith, (BioPak), Carmeuse Lime and Stone, Black River Bandits, Maysville KY

2008 **TYLER LOVATO,** (BG-4), OCI of Wyoming, Big Island Mine, OCI Blue Team - Green River, Wyoming

ROBERT RODRIGUEZ, (BioPak), Barrick, TSRV Mine, TSRV Team 2 - Golconda, Nevada

2006	**CURTIS SANDERS**, (BG-4), WIPP Silver Team, Washington True Solutions – Carlsbad, New Mexico
	RICKY MARTIN, (BG-174A), The Doe Run Maroon Team, The Doe Run Company - Viburnum, Missouri
	TOM SENECAL, (BioPak), Newmont Gold Team, Newmont Mining Corporation – Carlin, Nevada
2004	**MACLANE BARTON**, (BG-4), Sugar Creek Mine Limestone Lizards, Lafarge North America - Sugar Creek, Missouri
	GARRY MOORE, (BG-174A), Southeast Missouri Mining and Milling Division, Doe Run Grey Team, The Doe Run Company - Viburnum, Missouri
	ROD CHRISTENSEN, (BioPak), Barrick Goldstrike Mine, Barrick Goldstrike Mines, Inc - Elko, Nevada
2002	**LESLIE WAREHAM**, (BG-4), General Chemical Blue, General Chemical Soda Ash Partners - Green River, Wyoming
	DENISE RICH, (BG-174A), Stillwater Mine, Stillwater Mining Company - Nye, Montana
	DAN LUKE, (BioPak), Carlin Underground Mine, Newmont Mining Corporation - Carlin, Nevada
2000	**JOE BACA**, (BG-4), Blue Team, Waste Isolation Pilot Project, Westinghouse Electric Corporation - Carlsbad, New Mexico
	RICHARD WEST, (BG-174A), Silver Team, Waste Isolation Pilot Project, Westinghouse Electric Corporation - Carlsbad, New Mexico
	ROD CLEMENT, (BioPak 240), No. 4 Mine & Mill, Zinc Corporation of America - Hailesboro, New York
1998	**JOE BACA**, Waste Isolation Pilot Project, Westing- house Electric Corporation - Carlsbad, New Mexico
1996	**MACLANE BARTON**, West Fork Mine, Missouri Lead Division, ASARCO, Inc. - Bunker, Missouri
1994	**FRED MILLER**, Waste Isolation Pilot Project, Westinghouse Electric Corporation - Carlsbad, New Mexico
1992	**LESLIE WAREHAM**, General Chemical Mine, General Chemical Partners - Green River, Wyoming

1990 **STAN AMRINE**, Parachute Creek Mine, Unocal Mining Division - Parachute, Colorado

1988 **KARL SAUER**, Homestake Mine, Homestake Mining Co. - Lead, South Dakota

1986 **ART DAVIS**, Henderson Mine, Amax, Inc. - Empire, Colorado

1984 **STEVE YANCHUNIS**, Schwarzwalder Mine, Cotter Corp. - Golden, Colorado

1982 **ART DAVIS**, Henderson Mine, Amax, Inc. - Empire, Colorado

1980 **ALAN HERMEZ** (Draeger), Carr Fork Mine, Anaconda Copper Co. - Tooele, Utah

1980 **RODNEY PHILBRICK** (McCaa), Pine Creek Mine, Union Carbide - Bishop, California

1978 **WILLIE DAVIS** (McCaa), Lisbon Mine, Rio Algom Corp. - Moab, Utah

1978 **KEN JOHNSON** (Draeger), Climax Mine, Climax Molybdenum Co. - Climax, Colorado

1976 **STEVE MURRAY**, Bunker Hill Mine, Bunker Hill Co. - Kellogg, Idaho

MULTI-GAS INSTRUMENT CONTEST

2008 **RICK OWENS**, FMC Westvaco Mine - Red Team, FMC Corporation, Green River, Wyoming

2006 **RICK OWENS**, FMC Westvaco Mine - Red Team, FMC Corporation, Green River, Wyoming

2004 **RICK OWENS**, FMC Westvaco Mine - Red Team, FMC Corporation, Green River, Wyoming

FIRST AID CONTEST

2022 **Genesis Teal Team**, Genesis Alkali, Green River, Wyoming

2018 **Barrick Cortez Team**, Barrick Gold Corporation, Cortez, Nevada

2016 **Newmont**, Newmont Carlin Team, Elko, Nevada 2014 Newmont, Newmont Carlin Team, Elko, Nevada 2013 Kinross, Kettle River Buckhorn, Kinross, Republic, Washington

2010 **FMC Westvaco Mine**, Red Team, FMC Corporation, Green River, Wyoming

2008 **Barrick Goldstrike**, Gold Team, Barrick Goldstrike Mines, Inc., Elko, Nevada

2006 **Barrick Goldstrike**, Gold Team, Barrick Goldstrike Mines, Inc., Elko, Nevada, Ken Groves, Team Captain

2004 **General Chemical Mine**, General Chemical Blue, General Chemical Soda Ash Partners, Green River, Wyoming, Mickey Smith, Team Captain

2002 **Maysville Mine**, Maysville Mine Raiders, Carmeuse Lime, Inc., Maysville, Kentucky, Gary Lewis, Team Captain

2000 **Maysville Mine**, Maysville Mine Raiders, Dravo Lime, Inc., Maysville, Kentucky, Gary Lewis, Team Captain

COMBINATION CHAMPION

2022 **Genesis Blue Team**, Genesis Alkali, Green River, Wyoming

2018 **Ciner Blue Team**, Ciner Wyoming, Green River, Wyoming

2016 **Newmont Carlin Team**, Newmont Mining, Elko, Nevada

2014 **WIPP Red Team**, Waste Isolation Pilot Plant, Washington TRU- Solutions, Carlsbad, New Mexico

2013 **Newmont Mining**, Carlin Team, Newmont Mining, Elko, Nevada

2010 **Solvay Chemicals Inc.**, Solvay Chemicals Mine, Silver Team, Green River, Wyoming

2008 **FMC Alkali Chemicals**, FMC Red Team, Green River, Wyoming

2006 **Barrick Gold Team**, Barrick Goldstrike Mines, Inc., Elko, Nevada

2004 **WIPP Silver Team**, Waste Isolation Pilot Plant, Washington TRU- Solutions, Carlsbad, New Mexico

2002 **WIPP Silver Team**, Waste Isolation Pilot Plant, Washington TRU-Solutions, Carlsbad, New Mexico

TEAM TRAINER COMPETITION

2018 **Steve Setzer**, Doe Run Maroon, The Doe Run Company, Viburnum, Missouri

2016 **John Teague**, Morton Salt, Team Texas, Grand Saline, Texas

2014 **Jason Hook**, Vulcan Materials Co., Vulcan Blue Team, Bartlett, Illinois

2013 **Tom Senecal**, Barrick, Barrick Cortez Team, Crescent Valley, Nevada

2010 **Kenny Groves**, Barrick Gold, Barrick Cortez Team, Crescent Valley, Nevada

METAL AND NONMETAL

MINE RESCUE HALL OF FAME INDUCTEES

2022

Ward Broussard
Joseph Denk
Jeff Downey
Tom Graham
Sammy Linville

2018

Lynn Bayard
Kenny Heater
Richard “Rick” Hickman
Joseph Olivier
Steve Setzer
Richard “Stik” West

2016

W. Mark Davis
Richard (Denny) Dickerson
Donald Huffpauir
Gary Lewis
Edward (Eddie) Lopez
Leslie Wareham

2014

Maclane (Mac) Barton
Donald (Don) J. Foster
Raymond Nelson
Randal Romero
Rick Terry

2013

Michael T. (Mick) Dennehy
Tom Gleaton
Gary R. Gomez
Gary Kessler
John Sykes
John Teague

2010

Joe Baca
Henry Charpentier
Harold Leblanc
Felix Quintana

2008

Keith Mullins
Tim Musbach
Art Davis
Rogers (Rod) Etie
Rayward Segura
Lee Graham
Brian Liscomb

2006

John Angwin
Lonny Badeaux
Bob McPhail
Walter Mortimer
Clayton Pellerin
Harold Riffle

2004

Walt Bryant
William (Bill) Frankom
Stoney Hotard
Mike Padilla
John Pennington

2002

Wayne D. Kanack
Robert A. Koenig
Gerald Myers
Arlon B. Parmer

2000

M.R. “Whitey” Jacobson
R.J. Rucker
Richard Skelton
Harlan “Buddy” Webb

1998

Harry Hall
Anderson Leo M.
Bradshaw James
Chailland Harold
David James
“Buster” Mosele
Thomas Overy, Jr.
J.D. Pitts
Jack L. Squires

GENERAL RULES

FOR CONDUCTING THE CONTEST

1. The National Contest will be comprised of four individual events, including a Mine Rescue Field Competition (two days for each participating team), a Technician Team Competition, bench, a First Aid Competition, and a Team Trainer Competition. Each event will include a written examination. Note: Regional Contests will include the same four individual events; however, the field competition may be limited to a one day event.

2. Contest officials will be comprised of the Contest Director, Contest Coordinator, Chief Judge, Appeals Committee, field competition judges (including: field judges and mine attendants), isolation officials, written exam judges, technician team contest judges, and first aid contest judges. Note: During the working of the field problem(s), the No. 1 Judge will assume the role of the mine manager.

3. There will be no limitations as to the number of teams admitted from any county, state, district, company, or organization.

4. All teams must actively provide bona fide mine rescue services for the metal and nonmetal mining industry and meet all of the requirements set forth in 30 CFR Part 49. Collegiate mine rescue teams may compete in any or all of the competitions with approval of the Contest Director. If a collegiate team competes in all competitions, they must meet the requirements listed in General Rule No. 5.

5. Mine rescue teams may register a minimum of six and a maximum of eight competing team members. The team may also register a team trainer. If the team trainer competes in any one of the competitions, he/she must be included as part of the 8-member team. This may or may not include the benchman as this is a standalone contest. For the purpose of technician team and first aid contests, a team member may not participate in more than one event and each team will only be permitted to compete in each event once. The technician teams must compete with the same type of breathing apparatus and multi-gas instrument that their teams will be using for the mine rescue field contest. For the purposes of identification, participants of the Mine Rescue Field, Technician Team, and First Aid Contests must be dressed uniformly. This includes the testing process. Once registered, no changes will be permitted without the permission of the Contest Director.

6. A schedule of Regional Contests and the National Contest, as well as the respective hosting organizations, will be posted on MSHA's homepage under the "Mine Rescue" heading at www.msha.gov; This will also be posted on the Holmes website. The specific contest entry forms may be obtained through the hosting organization.

   The entry forms will require information regarding the type of equipment (breathing apparatus) each team will be wearing, the type and model of all gas testing equipment the team will use during the field competition, any 1-hour oxygen generating unit that the team may be using (including donning procedures), and the type of communication system to be used. Any needed equipment changes require submission of a modified list to the Contest Director for consideration of approval. (Note: Each judge will be given a list of your equipment prior to working of the problem to assist them in determining if the equipment was utilized properly and was functional.)

7. Prior to lockup, team equipment shall be secured in isolation and team registration will be conducted at a designated location. Afterward, all of the written tests (outlined in this booklet) will be administered in isolation. For planning purposes, the hosting organization will prepare a contest agenda to include: a specified time period for equipment drop-off; a specified time period and location for team registration; and a listing of scheduled events for the rest of the week. The agenda will be provided in advance to all participating teams and contest officials. At the time of the contest, the agenda will be posted in various locations as a reminder for all.

8. All written tests will be administered in isolation. The team members (Nos. 1 – 7) and team trainers will be directed to sit at separate tables. Persons from the same company or organization will also be required to sit apart from each other at the designated tables. A separate area will be designated for additional team alternates (No. 8) who wish to take the test(s). Their tests will not count toward their cumulative team scores.

   Note: No wireless communication or electronic device will be permitted in isolation or during the written testing.

   The field competition, first aid, technician team, bench and team trainer tests will be included at this same time. Regional or local contest can administer tests at their discretion. A description of each test with the corresponding references is listed in the respective section of this booklet. A maximum of 60 minutes will be allowed to complete all required testing (this should equal a minute per question). At the end of the allotted time, tests will be collected regardless of whether or not the contestants have answered all of the required questions.

Team trainers test shall consist of 30 questions from MSHA Publication 3027, CFR, Miner Act, First Aid statements of facts, Team Tech, and National Rules.

9. For the National and Regional Contests, the team drawing will be conducted as each team registers and drops off their equipment in the isolation area. As each team arrives, the number selected by the team captain will determine their running order for the first day's field competition, then run in reverse order for day two; all other disciplines will have separate draws. A regional or local contest may decide to pre-draw numbers in advance of registration.

   Changes necessary for management of the respective contest will be permitted if the Contest Director approves the change.

10. On every day of the competitions, all teams shall be in isolation at a time designated by the Contest Director. No wireless communication or electronic device will be permitted in isolation. Any team member found with a wireless communication or electronic device in isolation will result in the entire team being disqualified.

11. All judges will be persons trained in mine rescue procedures; trained in the assembly, use, and care of the different types of breathing apparatus; and trained in the assembly, use, and care of the different types of multi-gas instruments. Exceptions to personnel assigned for judging any phase of the contest requires the approval of the Contest Director.

12. **…WARNING…** Any team whose member(s) intentionally disturb or destroy any component on a competition field will immediately be assessed a 100 point discount. Repeated offense may result in team disqualification at the discretion of the Contest Director.

13. For Regional and the National Mine Rescue Contests, it is preferred that each registered team provides their own patients; however, if the team does not have the resources, the hosting organization will supply one person per field during the mine rescue field and first aid competitions. These persons will act under the direction of the field coordinators and will be used as survivors or patients, respectively.

    When an approved 4-hour oxygen breathing apparatus and/or an approved 1-hour oxygen- generating self-contained self-rescuer unit is required to be used on a patient, the team must demonstrate proper donning procedures and unit activation. After acknowledgement by the judge, for an approved 4-hour oxygen breathing apparatus the breathing hoses can be disconnected and the unit turned off; unless specified by the contest director prior to starting the problem.

The breathing apparatus must be kept in close proximity (as if it were used) to the patient during transport out of the mine.

For an approved 1-hour oxygen-generating self- contained self-rescuer unit, a training model must be used during the competition.

14. A trophy will be awarded for the Overall Mine Rescue Contest Champion based on the best cumulative team scores (least amount of discounts), including the combined discounts for the mine rescue field, first aid, and technician team competitions. In the event of a tie, the team with the best mine rescue team standing in the mine rescue field competition will be the tie breaker.

15. The results from all elements of the National and Regional Contests will be distributed to the teams at the conclusion of the awards ceremony.

MINE RESCUE FIELD COMPETITION

GENERAL RULES

1. The Contest Director will establish a reasonable amount of time for each team to complete the problem(s). All teams will be notified of the established time prior to beginning to work the problem(s). Any teams working beyond the established time period will be notified by the #1 Judge that they must leave the field. All teams will be scored based on their discounts, including: appropriate discounts for items missed in areas left unexplored or abandoned by the team; and appropriate discounts for necessary actions not taken by the team to complete the mission. An average time discount will be applied for teams above the average working time.

2. The Contest Director will ensure that all field problems are designed so that a team can successfully complete each problem with no discounts.

3. Discounts will not be added to the team's field score once the judges have signed their discount sheets. This does not preclude changes due to administrative errors or a misapplication of a rule.

4. **… WARNING …** Any team whose member(s) intentionally disturb or destroy any component on a competition field will immediately be assessed a 100 point discount. Repeated offense may result in team disqualification at the discretion of the Contest Director.

5. Upon completion of the problem, a 5-minute review will be conducted regarding their working of the problem. At that time, the team will be informed of infractions and will be permitted to verbally appeal these with the field judge or the chief judge. If not resolved, the chief judge will make the final decision until an appeal can be filed by the team.

   Note: During this process mutual respect for the judges and team members is paramount and civility must be demonstrated by all involved or the review will be stopped before the allotted time.

6. After the scorecards are checked by the scorecard examiners, they will be taken to a designated location. At a designated time, the team captain, trainer and all team members may examine their team's scoring cards for a time not to exceed 30 minutes. A schedule will be posted near the 30-minute look location. At the conclusion of the 30-minute look, the team captain and/or trainer may submit a written appeal for any discount received to the person in charge of the review. Written appeals are not to exceed one page for any discount assessed and will

be forwarded to the Mine Rescue Field Appeals Committee. No additional appeals will be accepted after the 30-minute look.

Documentation (contest rules and other documents used in the contest) supporting the appeal will be accepted. Any protest(s) will be considered by the Mine Rescue Field Appeals Committee. A discount summary sheet will be used to list the discounts. All discounts except time will be listed and totaled. Both the captain and the review judge will sign the team discount summary sheet to certify they have reviewed the discounts and verified the totals (See page 59).

7. The Mine Rescue Field Appeals Committee shall rule in matters concerning any interpretations, procedures, or any matter involving proper conduct of the Contest. Any complaints filed with the committee shall be in writing and shall set forth incidents, times, names, source of information, and the act complained against. Where a written test question or rule application was found to be wrong, all teams will receive the appropriate correction. A decision by a majority of the committee shall be binding.

8. A predetermined amount of trophies will be awarded for the Mine Rescue Competition based on the best cumulative team scores (least amount of discounts). For the National Mine Rescue Contest, this would include each team's combined discounts for both day's field problems plus their written test discounts. For the Regional Contests, this would include each team's discounts for the field problem plus their written test scores.

   In the event of mine rescue field competition ties, the underground discount sheet will be the first tie breaker, the surface discount sheet will be the second tie breaker, mine maps will be the third tie breaker, the written test will be the fourth tie breaker, and time will be the fifth tie breaker.

GUIDELINES AND PROCEDURES

TEAM MEMBERS

Each team shall be composed of five members, one fresh air base attendant and one command center attendant (optional). Each member shall wear a number on the arm at or near the shoulders with number one (1) being as- signed to the captain, the number six (6) to the fresh air base attendant, seven (7) to the command center attendant, and the number (8) alternate/patient.

Switching of numbers by team members will not be permitted after arriving at the portal or fresh air base. Any means of affixing legible numbers on the sleeve of the uniform will be acceptable. Additional persons, who had been isolated with the team.

Only the fresh air base attendant will be allowed to assist the team after the clock has started. The fresh air base attendant and command center attendant will be isolated from visual contact with the field while the teams are in the mine. The fresh airbase attendant will maintain voice communications with the team utilizing a portable communication system. The team may use either one of the following options to accomplish this task.

1. Teams may use a portable hard wire, communication system. The wires or cable shall be of sufficient tensile strength to be used as a manual communication system. Teams may use standard signals if the communication system fails. The command center attendant may listen in with a separate headset and advise the fresh air base attendant and interact with the team. If during the working of the problem any team member is unable to continue (due to physical condition or by problem design), the assistant (No. 8 member) may be used as a substitute only if a working team member goes down during the working of the problem. The team can rearrange member positions to complete the problem.

2. Each team shall have a briefing officer and/or command center attendant, which will accompany only one participating team. Switching of team members including the briefing officer and/or command center attendant from one team to another is prohibited. The command center attendant will be isolated from visual contact with the field and will be stationed at the command center during the working of the problem and will maintain voice communications with the team using either a portable hard wire communication system or a wireless (radio) system. The command center attendant may advise the briefing officer and interact with the team. The briefing officer and/or command center attendant map may be marked with information received from the team while the team is inby the Fresh Air Base. However, the team, briefing officer and the command center attendant will not be allowed to visually compare their maps once the team makes their 50ft team check, no side by side comparison will be allowed. All

maps shall be turned in at the completion of the problem. However only the map designated by the team shall be used for scoring purposes. The team will designate the map to use by checking the box in the lower right hand corner. If neither map is identified by the team for scoring the Briefing Officer map will be scored, unless the only map completed was the command center attendant map.

The briefing officer will remain at a designated location in the fresh air base when the team is working inby the fresh air base except when it is necessary to perform work outside that location in the fresh air base. When required work is completed, the briefing officer must return to the designated location.

3. Teams may use a wireless communication system (radios), provided they are designed and used in such a manner that the integrity of the Contest is not jeopardized. Therefore, team members stationed at the fresh air base must use headsets. A lifeline will still be required for working of the problem when the entire team advances into smoke or the team travels through smoke. If smoke is encountered during a team stop, as long as the team is on their team line, other members of the team can make that area as long as the tail captain is in fresh air; if the team travels through the smoke, the lifeline will have to be established in fresh air. This can be achieved through the use of a rope, wire or cable which has sufficient tensile strength to be used as a manual communication system. The assistant may listen to the radio transmissions and advise the fresh air base attendant and interact with the team. If during the working of the problem any team member is unable to continue (due to physical condition or by problem design), the assistant (No. 8 member) may be used as a substitute. The team can rearrange member positions to complete the problem.

   Note: For teams using a wireless communication system (radios), the specific requirements for use are outlined in the "Equipment" section.

In either case, teams wishing to communicate with the fresh air base attendant shall use their portable communication system, or they must return to the fresh air base to communicate in person.

MEDICAL REQUIREMENTS

Per 30 CFR Part 49, all mine rescue team members must have completed physical examinations in the past 12 months preceding the contest and are capable of performing strenuous work under oxygen.

EQUIPMENT

Breathing apparatus approved for at least four hours shall be used in the Mine Rescue Contest problems. Each team member must have his/her own approved breathing apparatus. Teams cannot expect recharging materials, apparatus parts, and accessories for all types of apparatus at the contest site.

Team members must wear an approved protective hat, identification tag, safety shoes, permissible cap lamps, self-rescuer, and be clean shaven to the extent that a good face-to-face-piece seal is achieved; if leakage occurs to the point to where the bottle needs to be changed, teams will be discounted accordingly.

Each team must have approved gas instruments, or testers for rescue and recovery work.

Teams are required to bring with them a sufficient supply of materials. Brattice or other materials necessary for constructing bulkheads or stoppings will be furnished by the field committee. Teams will be responsible for collecting the material from the source of supply.

When teams report to the fresh air base to begin the problem and are given information indicating that explosive gas(es) is/are or may be present in the mine, they must have non-sparking tools while they are working the problem so as not to endanger them- selves. If teams do not have non-sparking tools, they must ask the official in charge at the fresh air base to provide them with such tools before they go under- ground.

If the mine is not classified as gassy and the teams go underground to work the problem and encounter an explosive gas and they do not have non-sparking tools, they must return to the fresh air base immediately and ask the official in charge to provide them with such tools.

For teams who opt to use a wireless communication system (radios) during the mine rescue field competition, the following procedures shall be strictly followed.

- All radios are to be MSHA-approved and intrinsically safe.
- Upon completing the contest entry form, the team shall properly identify that they will be using radios in lieu of a hard-wired system during the field competition.

- On the day before the contest as the team drops off their mine rescue equipment, they must provide all of their radios to the official-in-charge with a list of the programmed channels and frequencies. The radios must be properly labeled as team property so that they can be stored exclusively for the respective team's use. The associated charger(s) must be supplied.
- Teams using wireless communication must have radios charged and properly programmed to the MSHA FCC licensed radio frequencies prior to turning them over to contest officials.

UHF radios must support at least 16 channels (see Table 1).

VHF radios must support at least 3 channels (see Table 2).

TABLE 1 – UHF FREQUENCIES

Channel	Frequency	PL	Channel	Frequency	PL
1	451.8000	71.9	9	466.1375	146.5
2	456.8000	82.5	10	469.5625	156.7
3	461.0375	94.8	11	461.0875	167.9
4	461.1375	103.5	12	469.5000	179.9
5	462.7625	110.9	13	461.0625	192.8
6	462.8375	118.8	14	464.5000	210.7
7	464.5500	127.3	15	466.0875	225.7
8	466.0375	136.5	16	469.5500	241.8

All Frequencies will have a PL code set for transmit and receive of 94.8 Hz

All Frequencies will be set to "Low Power" and "Narrow Band"

TABLE 2 – VHF FREQUENCIES

Channel	Frequency
1	151.5050
2	151.6250
3	154.5275

- MSHA licensed radio frequencies and settings such as PL codes, low power, and narrow banding protect MSHA and teams from FCC violations and prevent crosstalk between competing teams.

- When selecting a channel for team competition, the team's radios will be set by a designated contest official on a channel that is different from any other radios in use.
- The mine manager (No. 1 Judge) or other designated contest official will check and monitor conversations on the channel selected. In the event of failure of the radio provided to the mine manager or other contest official, corrective actions will be immediately taken by the team.
- Teams may take up to three radios inby the fresh air base and must provide at least two for the fresh air base to be used by the team's attendant and the mine manager (No. 1 Judge). Teams may leave additional radios at the fresh air base for use in case of malfunctions. **A minimum of three radios shall remain operational during the working of the problem:** one radio each for the team, the team's fresh air base attendant and the mine manager (or No. 1 Judge). This complement of radios is necessary for the team to be considered as using wireless communication.

TEAM PREPARATION (APPARATUS)

Team members must make necessary checks of all apparatus for proper working condition and airtight- ness prior to going underground. Cylinder pressures must be within specifications of approval. Apparatus tests must comply with prescribed tests for that particular type of apparatus.

An approved 4-hour oxygen breathing apparatus, Caravent, and/ or an approved 1-hour oxygen-generating unit must be used as an emergency egress for a mine rescue team member or for use on the survivor(s) or other rescued personnel when respiratory protection is needed.

Note: If a survivor is found and is wearing an ap- proved 1-hour oxygen-generating self-contained self- rescue (SCSR) device, the team will not be required to replace it with one of the above mentioned units un- less the SCSR has been depleted.

WRITTEN TEST

All written tests will be administered in isolation. The mine rescue field test will be included at this same time. Team member Nos. 1 through 7 will take the written test. The six best test scores (least amount of discounts) will be counted as the team's cumulative written test discounts. If the team does not have a No. 7, then the aggregate sum of scores for team member Nos. 1 through 6 will count as the team's cumulative written test discounts.

The questions for the written test will be taken from material contained in MSHA Publication 3027 – Instructor's Manual for Mine Rescue Training (formerly MSHA Publication "IG 6"). The training modules in Publication 3027 are as follows: Module 1 – Surface organization; Module 2 – Mine Gases; Module 3 – Ventilation; Module 4 – Exploration; Module 5 – Fire, Firefighting, and Explosions; Module 6 –Rescue of Survivors and Recovery of Bodies; and Module 7 – Mine Recovery.

MSHA Publication 3027 is available on the MSHA homepage at http://www.msha.gov/MineRescue/ Training/TeamTraining.asp or at the following address:

U.S. Department of Labor National Mine Health and Safety Academy

Attention: Printing and Training Materials Distribution 1301 Airport Road

Beaver, WV 25813-9426

Telephone: (304) 256-3257

Fax: (304) 256-3368

E-mail:MSHADistributionCenter@dol.gov

The written test of thirty (30) questions will include at least ten (10) questions on mine gases from MSHA Publication 3027 (Module 2 – Mine Gases) for each team member. The questions shall consist of multiple choice questions and/or true and false with 4 being the maximum number of choices for multiple choices questions. If regional or local mine rescue contest choose to separate day 1 and day 2 winners, they may choose to break the test up between the two days.

The total written test discounts (as determined above) will be included as part of the team cumulative discounts for the mine rescue field competition (i.e., National Contest – two-day total or Regional Contest – one-day total).

JUDGES

All judges will be persons trained in mine rescue procedures and knowledgeable in the rules, interpretations, and the procedures for working the respective problems. The judges will attend training sessions prior to the contest concerning the problems to be worked and the guidelines for working such problems. Judges will be trained in all aspects of the problems to allow for consistent and accurate judging.

If there is a question on an appeal or a rule interpretation, Judges are encouraged to reach out to a member of the respective rules committee for guidance. The contest director will have a predetermined contact off of the respective rules committee for this purpose.

Competing teams deserve the full attention of the judges and only those personnel judging the specific teams are allowed on the field. While the team is in the mine, judges must not ask questions or interfere with the team. Only personnel approved by the Contest Director will be permitted on the field. Any relevant information or predetermined information pertaining to the field problem will only be answered by the #1 judge.

During preparation at the fresh air base, judges are to observe the captain and other team members as to their knowledge and proper operation of the self-contained breathing apparatus, gas detecting devices, other respiratory protection equipment to be used, and firefighting equipment, etc.

The No. 1 Judge will assume the role of the mine manager and will travel with the team throughout the field problem. The No. 1 Judge will provide answers, as necessary, to questions posed by the team, the fresh air base attendant, or the command center attendant.

A minimum of two (2) persons will judge the team during the entire working of the field problem. Only the Contest Director, Chief Judge, or their designee may discuss discrepancies or discounts on the field. If discussions are held on the field, interrupting the working of the problem, the time will be stopped and restarted after the discussion is over. A Mine Safety and Health Administration employee will be the #1 Judge. All judges must have current Mine Rescue Judge's Training and have been briefed on the particular problem and possible solutions.

The judges will mark and explain on their scorecards the discounts for work performed by each team member. In the event that more than one discount applies, the highest discount will be assessed for a violation. There will be no stacking of discounts. Judges must sign their scorecard after the discounts have been recorded. Scorecards will be marked promptly and delivered to scorecard examiners as soon as possible after completion of the problem.

SECURITY

Each team must be under guard before the start of the contest, in a location assigned by the Chief Judge, and must remain continuously under guard until time to work the problem. Any team receiving information concerning a contest problem will be disqualified. No person except guards and contest officials authorized to do so, will be allowed to communicate with any team or teams under guard. Teams that have performed will not be permitted to communicate with any teams awaiting their turn to perform.

Media access and videos for future training aids will be allowed with the Contest Director's approval. Therefore, only judges, contest officials, escorted photographers, and news media approved by the Contest Director will be permitted on the competition fields. A separate area will be provided for spectators to observe the teams during competition.

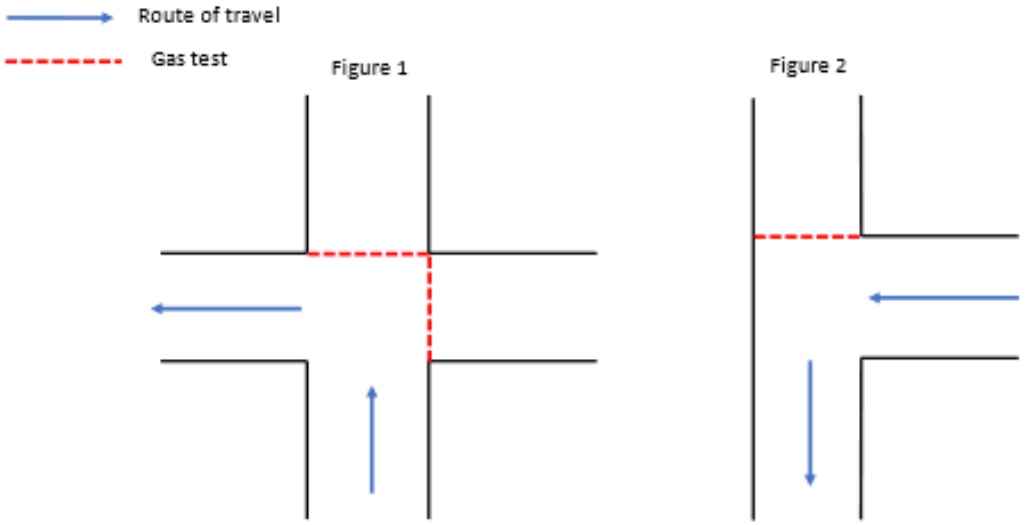
COMPETITION PROBLEM

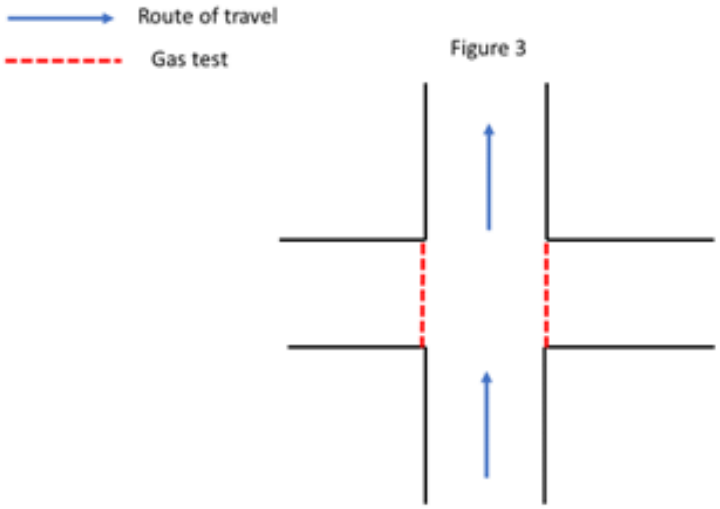
The problem may involve a multi-level mine; however, the team will be limited to working on one level. It may include hoists or shafts. Skip pockets and sumps (either above or below) will be considered part of the working level. Raises or boreholes may be in the problem; however, climbing will not be required.

Teams may have to change existing ventilation, pump water, set roof supports, or move piles of ore to rescue persons and/or explore if it can be done safely. ~~If falls piles of ore can be moved, there will be a placard denoting the condition of the back~~. In order for piles of ore to be moved, equipment will be available and atmosphere conditions must be free of smoke and explosive mixtures. Changing ventilation shall not be done until the official in charge has been informed. Ventilation changes will be considered as starting, stopping, altering, or redirecting the air current. If existing check curtains are to be used to direct ventilation, the check curtain must first be converted into a temporary stopping. Regulating airflow to control a fire is not considered a ventilation change.

All areas that have been cleared of smoke and toxic or dangerous gases that the teams elect to travel through must be rechecked prior to the team's reentering. Upon re-entry into these areas where the ventilation has been changed, whether advancing or retreating through these areas, separate gas tests will be conducted by the team at openings off the route of (rib-to-rib) within 25 feet of each opening to the place turned off the entry. See figure 1-3 below:

FIGURES 1-3


Route of travel
Gas test
Figure 1
Figure 2


Route of travel
Gas test
Figure 3

When smoke or gas is encountered in an opening, it will be considered to extend to the next placard indicating the smoke or gas is cleared.

If water is being pumped, ventilation changed, falls moved, loose rock barred down, etc., teams must wait until placards have been changed by the ground committee (field judges). If placards have not been changed after 15 seconds, teams must assume that their actions were not successful; gas tests are not required to initiate a placard change for successful ventilation changes.

Inaccessible areas only need to be explored when there are miners unaccounted for or if an explosive air/gas mixture will be moved through the unexplored areas. Therefore, teams will not be required to set timbers, ~~or~~ pump water, or move piles of ore until all accessible areas have been explored and there are still missing miners.

Teams will not be considered unsystematic if these conditions are found and passed during initial exploration of the problem field. When it becomes necessary to explore inaccessible areas, appropriate materials will be provided. Tops of overcast's will be considered explored once both sides are made unless otherwise denoted by placard.

Insofar as possible, materials rather than placards will be used in the mine. Bodies with identification may be designated by the use of dummies. When placards in dictating conditions are used, they will be placed face up, and the letters shall not be less than one (1) inch in height, and easily visible.

Additionally, when these placards are used to identify mining machinery or equipment, a description of the current condition of the equipment and/or a photocopy of a picture of such machinery or equipment may be on the placard, when possible, to aid teams in identifying it.

Terms used in the problem will be terms which appear in the Glossary of this Rule Book, the MSHA Mine Rescue Training Modules, or 30 CFR Part 49 and Part 57.

When raises, winzes or boreholes are in the problem, the card identifying them will indicate whether they go up and/or down from the level being worked.

TEAM PREPARATION AND PROCEDURES

APPARATUS AND MATERIAL CHECKS

Before reporting to the contest field, each team member must check his/her own apparatus to see if it is charged properly and in good working condition. These checks must be within the manufacturer's specified limits and the regenerator fully charged with chemicals.

Other materials such as roof testing devices, stretchers, hammers, blankets, fire extinguishers, and gas detectors must be checked to see that they are in good operating condition. If horns are to be used for signaling between team members, they should be checked. A portable communication system must be used by all teams. Wheeled stretchers will be allowed.

BRIEFING

When all members of the team have their apparatus fully assembled and ready to wear, the captain should assemble the team and report to the Briefing Station Official when directed by the guard. The team will be briefed on field conditions either by a video or a briefing paper. Team members will return any handouts

at the conclusion of the briefing. The briefing should contain all pertinent information, including the following conditions: classification of the mine; frequency of explosive gas being found; accuracy of the mine map; possibility of the mine being cut into another mine; condition of the fan; have guards been posted; electric power cut off from the mine or affected parts of the mine; recovery work that has been accomplished; notification of the local, state, and federal agencies; reserve rescue teams, equipment, and materials that are available.

Any final adjustments to the equipment and necessary talks between team members can be completed prior to reporting to the field judge.

REPORTING TO THE FIELD

On reporting to the field, communication cable can be strung out prior to starting the clock. Afterward, the captain should have the team line up at the place indicated by the person in charge. The captain introduces his team and remarks “We are here to offer our help. I have a fully equipped, properly trained, and physically fit mine rescue team and we are ready to do anything that you may require in the rescue and recovery work at your mine.” The official in charge will reply that they do require the service of mine rescue teams, and that if they are ready, they can be of immediate service.

START OF PROBLEM

When the necessary introductions have been made, the team captain will indicate that they are ready for the problem and map. No work will be done until the clock is started. The captain will start the timing device and date the board (month, day, year, and team position number) before receiving the problem and the map. After the clock is started, only the five working team members, fresh air base attendant, and assistant will be permitted to do the work at the fresh air base. Portable communication systems may be checked for proper operation prior to starting the clock.

The fresh air base attendant will receive the problem and map at the same time. From this point on, the team members should discuss the conditions present- ed by the problem and the map. On the map, solid lines will denote actual workings. Although locations may not be totally accurate within the six (6) foot map requirement, solid lines will represent known conditions. Dotted lines will denote projections and may or may not be accurate. These conditions should be studied carefully so that proper procedures may be decided in advance.

EQUIPMENT CHECKS AND PROCEDURES

No testing of equipment is required at the fresh air base. Testing of equipment used by the team will be performed while the team is in isolation before reporting to the field. This testing will not be judged, however, if any defects occur while working the problem, discounts will be assessed. Random checks of equipment to insure reliability may be made upon completion of the problem.

STANDARD COMMUNICATIONS AND SIGNALS

A portable communication system will be used to inform the fresh air base of all conditions encountered. External speakers will not be permitted at the fresh air base while working the problem. In the event of a communication failure, the team will be required to return to the fresh air base to repair or replace the system.

The following standard horn blasts or other audible signals between team members will be used:

1 blast on the horn will mean for the team to “stop” if in motion

2 blasts on the horn will mean “advance”

3 blasts on the horn will mean “retreat”

4 blasts on the horn will mean “distress”

HOIST SIGNALS

When hoist signals are provided by problem design, those signals will be used. When no signals are provided, teams can simply state calling or releasing cage; and/or dictating movement.

TEAM SAFETY

Team members must follow established procedures, per this booklet for the type of equipment used, when getting under oxygen.

The team captain must now check each member's apparatus. A team member must make the same checks on the captain's apparatus. The judges will observe the operation and adjustment of the apparatuses.

The captain should see that the team line is properly stretched out and that the team members are holding or are attached to the team line.

If a team encounters smoke, an apparatus check or personnel check is required before entering smoke. The captain must now have the team count off either orally or visually by the raising of hands. In smoke, all team members must have hold of, or be fastened to, a lifeline.

The captain must give the signal to advance, and the rear captain shall relay the signal to the fresh air base. When the signal is returned, the team may now advance into the mine.

Entrances to all mine openings shall be examined while under oxygen. In air clear of smoke, these checks may be made without a lifeline, provided the entire team does not go into the entrance. This examination should not cover more than twenty-five (25) feet.

For Contest purposes, a placard denoting "clear air" will mean that the atmosphere is free of smoke and all dangerous and/or harmful concentrations of flammable, combustible, noxious, and/or toxic contaminants.

Teams shall never travel through water over knee deep.

Checking for loose ground (loose roof or rib) is done visually by the team captain as the team advances. The captain must verbally indicate that he is checking for loose ground at every location required. The team captain must orally warn the team each time loose ground conditions are encountered. A similar warning must be given upon retreat by a working team member.

FIRST TEAM STOP

After advancing into the mine, not more than fifty (50) feet from the cage or portal, the captain shall give a signal for the team to stop. The co-captain may take no more than two steps forward after the signal before stopping. The captain now checks the members and their apparatus to see if they are in good condition and a team member checks the captain and his/her apparatus. (This check must not be made on the cage.) The procedure shall be followed at not more than twenty

(20) minute intervals while the team is working the problem. Additionally, apparatus removed in order to enter a confined area or apparatus that has sustained possible damage from impact must be checked before continuing.

If all the apparatus are operating properly and the members are in good condition, the team can now continue into the mine.

The cage door must be closed and the signal to release conveyance to a standby mode must be sent after the cage has been unloaded.

ADVANCING

When stops are made at the openings of crosscuts, intersections, or drifts turned off the drift that is being traveled, separate gas tests must be made across each entry (rib-to-rib) within 25 feet of each opening to the place turned off the entry. No place, which intersects entry direction, should be passed without first checking the condition of that place. Examination of any intersection or entry shall not exceed 25 feet from the rear captain. This means the captain can extend out into openings and take gas readings within the limits of the team line.

In case of entries turned from the entry being traveled, it is a matter of choice which entry is to be followed and many things must be taken into consideration in making the choice. However, the openings of all places must be checked before that place is passed. A team will be considered to have passed an opening or intersection when the number 5 member is past the opening.

While advancing, if a team encounters an impassable fall or other condition that prevents the members from following the normal course of travel into an area, they may break a stopping and enter that area. If it be- comes necessary to break a stopping, the team shall erect a temporary stopping or stoppings that would have the same effect on the area that the original stopping would have provided.

Doors shall not be opened without prior knowledge of the effects of the mine ventilation system, unless a temporary stopping has been erected. However, in any case, if the conditions behind the stopping or door are unknown and there is a potential that missing miners are located in the enclosed area, these ventilation controls should be treated like a “barricade” and the same precautions must be taken as prescribed in the section below.

Regulators shall not be opened without prior knowledge of the effects of the mine ventilation system, unless a temporary regulator has been erected.

Where crosscuts are blocked, no team member may advance more than three (3) feet beyond the second (2nd) intersection before tying across and/or behind into all unexplored areas that intersect. The second intersection will be determined by two crosscuts on either side of the entry being traveled. The first inter- section will be the blocked intersection. However, a team will be permitted to tie across to adjacent drifts to tie in behind. If accessible, teams must tie across and behind before advancing.

BARRICADES

If a barricade is found, the team will take action to protect the barricaded persons as indicated by the conditions found outside the barricade. For the purposes of contest work, no barricade will be breached without ventilating in front of the barricade if an **Immediately Dangerous to Life or Health (IDLH**) atmosphere is present, including: Oxygen (O2) is below 17.0%; or Carbon Monoxide (CO) exceeds 1200 ppm (0.12%); or Hydrogen Sulfide (H2S) exceeds 100 ppm (0.01%); or Nitrogen Dioxide (NO2) exceeds 20 ppm (0.002%); or Sulfur Dioxide (SO2) exceeds 100 ppm (0.01%); or Carbon Dioxide (CO2) exceeds 4.0%; any smoke is considered an IDLH atmosphere. In the event that gases other than these are encountered or indicated by the problem, the team must ask for stain tubes or testing devices for these gases if they don’t have them.

If conditions behind the barricade are unknown, the barricade cannot be breached unless the team erects a reasonably airtight temporary stopping. The space between the barricade and the temporary stopping should be as little as feasible; however, it should be large enough for the team to enter. When entering the barricaded area, the opening in the barricade should be kept to a minimum, the roof in the area shall be tested, and gas tests made.

If survivors are found and conditions warrant (i.e., survivor will travel through an IDLH atmosphere), they shall be given proper respiratory protection which can include an approved 1-hour oxygen generating unit (including a CareVent-CA). If a survivor is unconscious, an approved oxygen breathing apparatus equipped with a full face-piece must be used.

Note: If a survivor is found and is wearing an approved 1-hour oxygen-generating self-contained self-rescue (SCSR) device, the team will not be required to replace it with either a 4-hour or a 1-hour oxygen generating self-contained self-rescue unit unless the SCSR has been depleted.

If more than one (1) survivor is behind the barricade and proper protection cannot be provided for all of them, the team in retreating should keep the openings in the barricade and temporary stopping to a minimum so that as little irrespirable air will get into the barricaded as possible. If the area beyond the last survivor can be explored without advancing the survivor, this should be done before retreating with the survivor.

When all the survivors have been removed from the barricaded area, the enclosure may be opened (or breached) as wide as necessary for easy exit. Survivors that cannot walk must be secured to the stretcher and covered with a blanket unless first aid procedures indicate other treatment is proper. If a person is found behind a barricade or in a refuge chamber and the area is not entered, the team may advance beyond the chamber for exploration. However, if survivor(s) can be safely evacuated without changing conditions, they shall be evacuated before any further exploration is done.

DATES AND INITIALS

The date and the captain's initials must be marked at the point of farthest advance of the team in any direction such as at stoppings, faces of rooms and drifts, water over knee deep, impassable falls, barricades, fires out of control, and at the location of any survivors or bodies. The captain must verbally indicate to the judges each time initials and date are simulated.

MAPS AND TIMING DEVICE

The map person and fresh air base attendant/command center attendant must use the standardized map legend provided in this rule booklet. If a symbol is not available on the legend, the team must write out the exact information contained on the placards on both maps. Teams will be expected to accurately map all required items on the maps maintained by the team and the fresh air base attendant.

An additional map will be provided to the team for use by the team command center attendant, if they so choose. However, deficiencies found on this map will not be counted toward the team's cumulative score.

If a team elects to use electronic mapping, the maps will be compared. If a discount is assessed from the FAB map or the CC map and is correct on the other map, the discounts will be forgiven, up to six (6) discounts. This will only be the case if the team is using the Visio mapping system. Teams using paper maps at the CC will not be afforded this benefit.

After the team has completed its 50 foot check, they will not be allowed to physically compare the team map with the fresh air base map. That is, no side by side comparison will be allowed; ~~and no changes (edits) can be made to either map while the team is at the fresh air base or out of the mine~~. All edits must be made via the communications system. When the team has explored all accessible areas, accounted for all miners and completed all required work, they should return to the fresh air base and count off. At that time, no other changes can be made to either map and the captain should present all three maps to the person in charge of the mine and stop the timing device.

The marked maps must show: the condition of all faces, stoppings and doors; the location of all placards or materials; the location of fires and barricades; and the location of dead bodies and survivors (including identification). Temporary stoppings that are erected shall also be shown as well as the location of any gas found or indicated by placards. If a team fails to explore the entire mine, the furthest point of advance shall be indicated on the maps by a line drawn across the entry with the appropriate mine map legend symbol.

Smoke shall be carried for the extent of the smoke throughout the mine. In addition, smoke should be shown as cleared in areas of cleared with ventilation.

VENTILATION

Under no circumstances should mine ventilation be altered without knowing the full effects of those changes and without notification of the changes to the mine manager (No. 1 Judge).

A contaminant or explosive gas, when indicated on a placard and regardless of the mass, is considered moved throughout the established ventilation course until exhausted from the mine.

Unless otherwise documented by placards indicating air movement, the mine is not considered to have natural ventilation or airflow. All airflow is provided by the existence of mine fans or other mechanical ventilation. However, before the team can breach, open, or alter an existing ventilation control (bulkhead, door, stopping, or regulator) without the knowledge of the effects on the existing mine ventilation system, the team must follow the necessary precautions outlined in the “Advancing” section of these rules. In addition, any air tight structure, excluding RA’s, that has an IDLH atmosphere in front of it, it must be treated as a barricade.

Any area that a condition is blocking off air flow to the unexplored area shall be protected to prevent the mixing of atmospheres; this will be site specific (immediate vicinity) based on conditions found in the mine or working of the problem.

Ventilation changes will be considered as starting, stopping, altering, and/or redirecting the air current. The direction of airflow depends upon where the team constructs ventilation controls. A standard brattice frame and curtain are 10 feet. Therefore, if the team elects to build a ventilation control at a distance greater than 10 feet, such as diagonally across an intersection, they must utilize a second brattice frame and curtain.

If existing check curtains are to be used to direct ventilation, the check curtain must first be converted into a temporary stopping.

Regulating airflow to control a fire is not considered a ventilation change.

If there is no clear air separation, indicated by placards, stoppings, caved air tight, the entire area is considered contaminated. Once the team has established an airflow course, areas that contain contaminants that are not directly in the established air course, and have two or more openings, could potentially be drawn from those areas unless isolation and/or ventilation controls are established to prevent movement. An example is in an uncontrollable fire area where regulators were constructed. Until all but one regulator is closed, airflow will draw from those regulators into the established air course.

Blankets or other porous materials cannot be used as curtains to direct airflow. All brattice material, including wing curtains, will be provided for each problem so that adequate ventilation can be established to work the problem correctly. Teams will not be permitted to carry additional brattice materials on their stretcher.

All problems will be designed with at least one clear and systematic ventilation solution. When the team alters and/or constructs ventilation controls, and the effects of those changes do not clear the air and the placards do not change, the team has missed a critical adjustment to the ventilation solution.

For building purposes, ventilation structures built by the team may be placed perpendicular across an entry, crosscut, or opening, or diagonally from safe corner to safe corner at intersections. (Corners are considered safe unless otherwise indicated by placard).

For ventilation purposes with areas of unsafe intersections, if a team only utilizes minimum required timbers to make the intersection, before ventilation through that area, teams will need to physically make the sides of the intersection in the ventilation path in order to safely ventilate through the intersection.

MINE FIRES

When a mine rescue team encounters a non- combatable fire, indicated by “intense heat” or “fire out of control,” the team shall, without undue delay, seal the fire or regulate the fire, so as to restrict the air flow to the fire and prevent its further advance. For contest purposes, this will take precedence over rescuing of survivors to maintain team safety. Regulating airflow to control a fire is not considered a ventilation change. The team must then, without undue delay, find all other approaches to the fire and seal or regulate them. This does not preclude systematic exploration of the area. Whether to use regulators to control the fire or to entirely seal the fire must be decided by the team. The team must inform the official in charge prior to making any ventilation changes.

This decision will take into consideration the safety of the team and any survivor(s), the classification of the mine (gassy/non-gassy), the presence of any explosive gases, the possible effects of any ventilation change(s), and other pertinent data. A regulated fire, left unsealed, has the potential to emit contaminants into the mine atmosphere.

ROOF OR GROUND CONTROL

The following illustration (Figure 1) shows the proper method of setting roof supports through an unsafe area using the safe ribs as support.

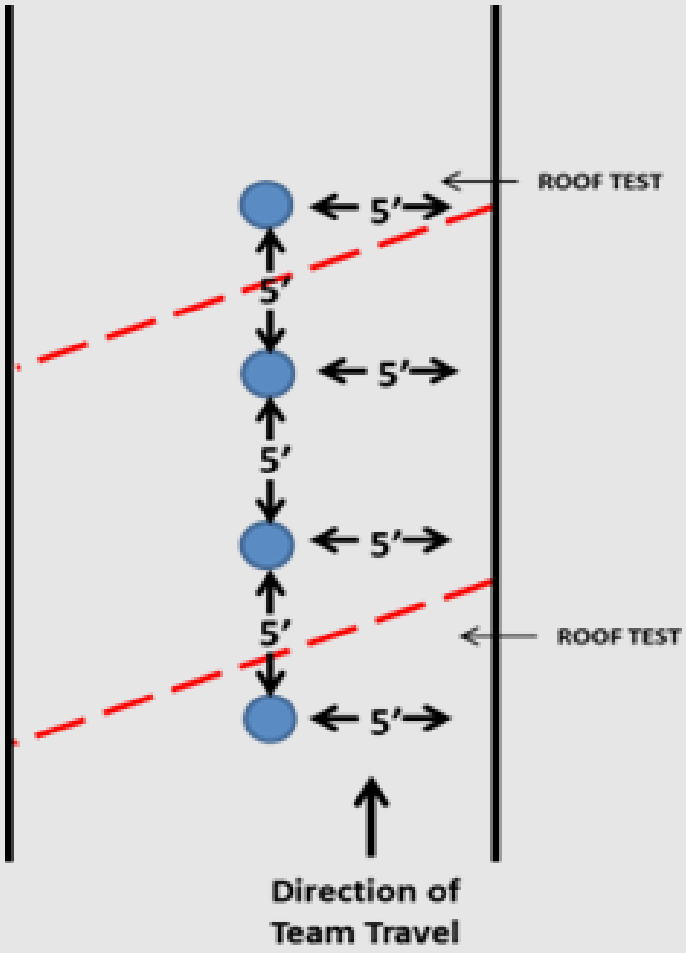
- 5-foot maximum spacing between temporary roof supports.
- The first support is set immediately outside the designated unsafe area.
- The rib can be used as support unless designated as unsafe.
- Once a post has been set to correct and sup- port an unsafe roof condition, it cannot be removed.

If the unsafe roof is less than 5 feet in length, a mini- mum of three supports must be set; one on each end and one under the unsafe roof.

The team must simulate setting support and then place placard (or other material provided by the con- test officials) on the floor in the proper location.

The following figures are just some examples of proper methods for setting roof supports. Other field problem scenarios requiring roof support not depicted in this section must incorporate the same principles of roof or ground control (5 feet spacing and safe location to set first support).

FIGURE 1



The following illustration (Figure 2) shows the proper method of setting roof supports through an unsafe area with designated unsafe ribs.

- 5-foot maximum spacing between temporary roof supports.
- The first support is set immediately outside the designated unsafe area.

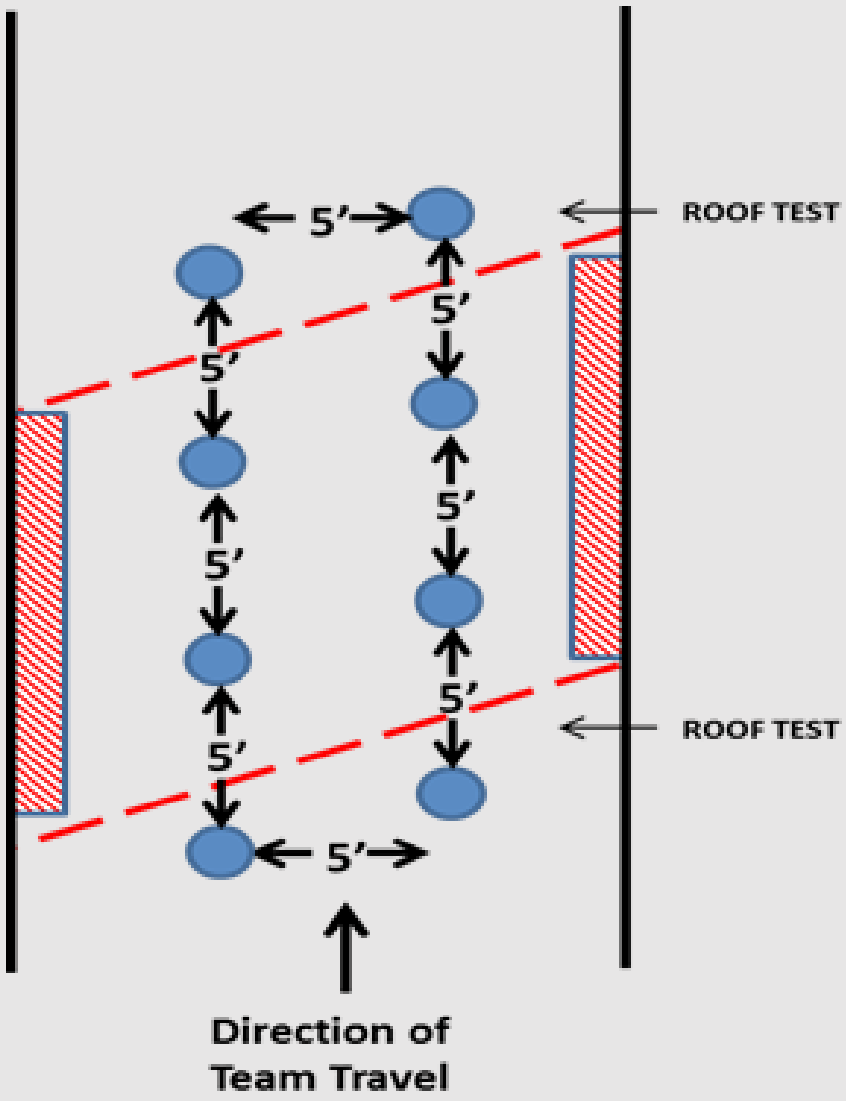
- The rib can be used as support unless designated as unsafe.
- Once a post has been set to correct and support an unsafe roof condition, it cannot be removed.

If the unsafe roof is less than 5 feet in length, a minimum of three supports must be set; one on each end and one under the unsafe roof.

The team must simulate setting support and then place placard (or other material provided by the contest officials) on the floor in the proper location.

If the team travels by a person in elongated unsafe roof, the team can see this person as they have traveled past this area.

FIGURE 2

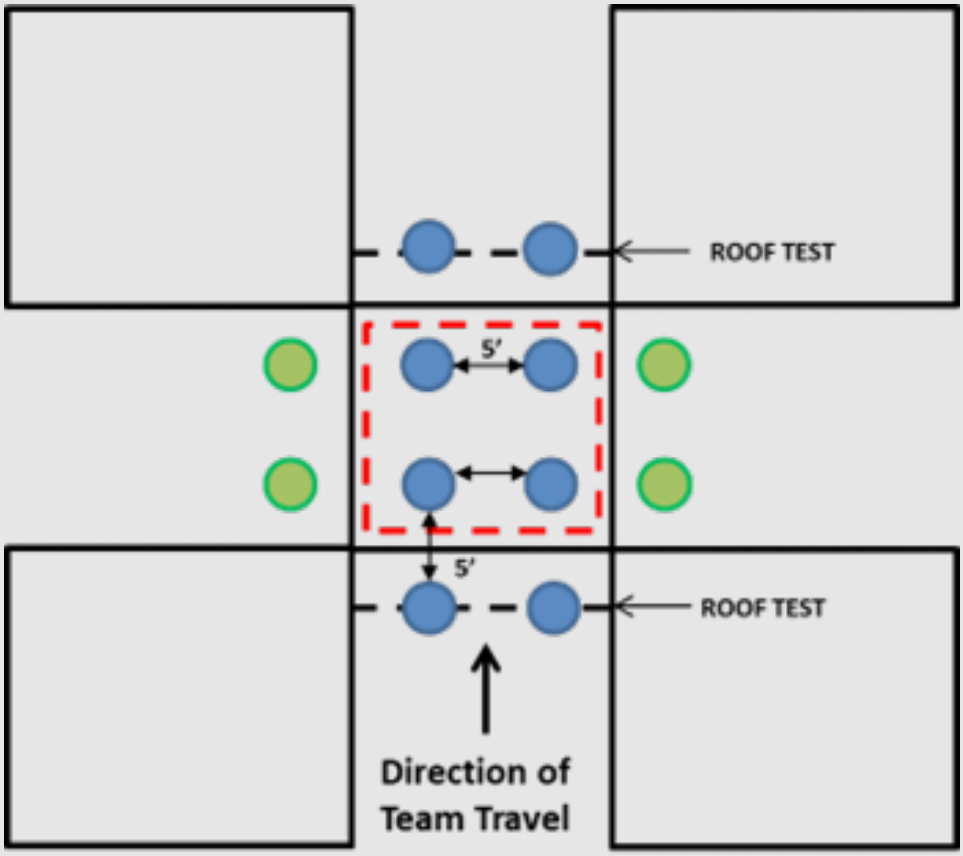


The following illustration (Figure 3) shows the proper method of setting roof supports through an unsafe intersection and/or ventilation purposes.

- 5-foot maximum spacing between temporary roof supports.
- The first support is set immediately outside the designated unsafe area.
- Once a post has been set to correct and support an unsafe roof condition, it cannot be removed.

If the unsafe roof is less than 5 feet in length, ~~a minimum of three supports must be set; one on each end and one under the unsafe roof.~~ the team must support or timber the entire area of the teams travel. The team must simulate setting support and then place placard (or other material provided by the contest officials) on the floor in the proper location.

FIGURE 3



Note: If the team decides to travel through the intersection to the east or the west, additional supports will need to be installed (as shown in green on the illustration).

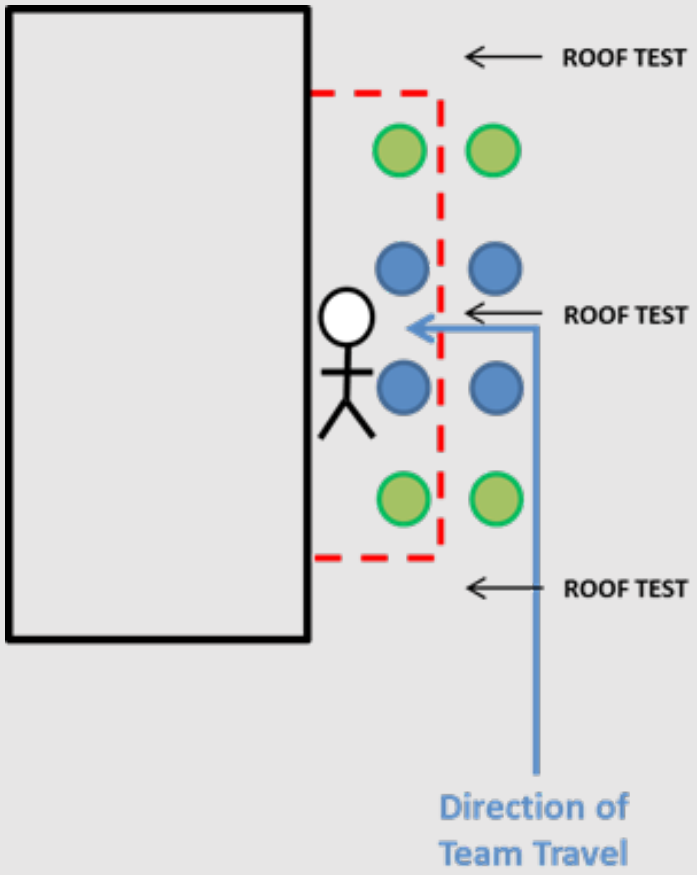
The following illustrations (Figures 4, 5 and 6) show the proper method of setting roof supports to recover a patient located under an area of unsafe roof or back.

- 5-foot maximum spacing between temporary roof supports.
- The first support is set a maximum of 1 foot from the area designated as unsafe.
- Once a post has been set to correct and support an unsafe roof condition, it cannot be removed.

If the unsafe roof is less than 5 feet in length, a minimum of three supports must be set; one on each end and one under the unsafe roof.

In each situation, the team must simulate setting supports and then place placards (or other material provided by the contest officials) on the floor in the proper location.

FIGURE 4



Note: If the miner is alive and requires first aid, additional supports will need to be installed (as shown in green on the illustration) so that additional team members can safely access the area and provide necessary treatment.

FIGURE 5

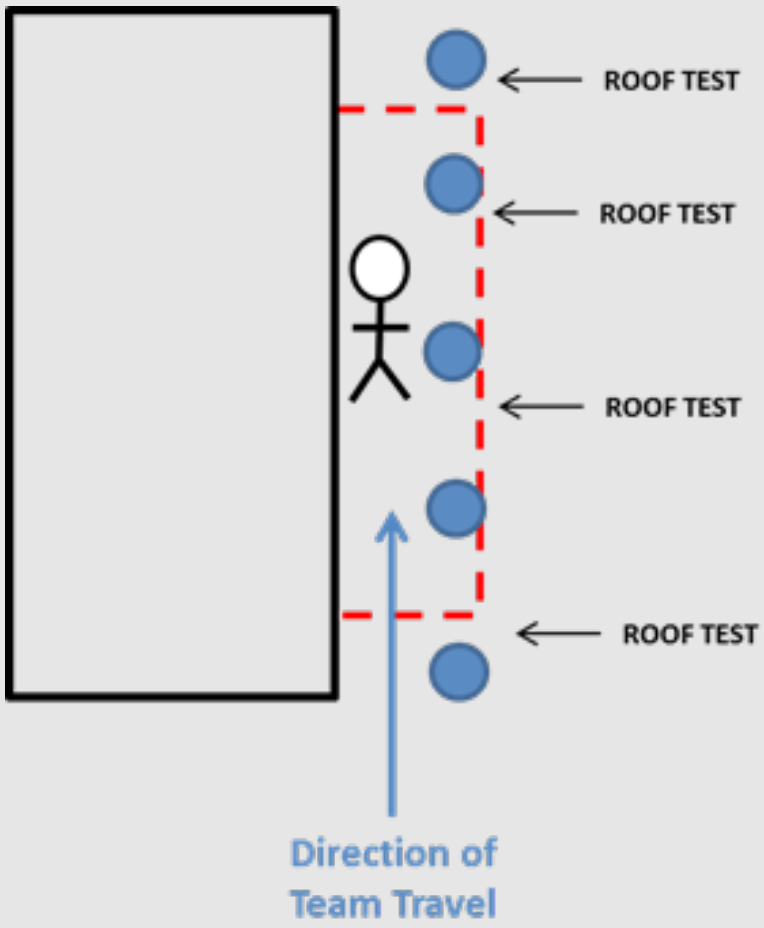
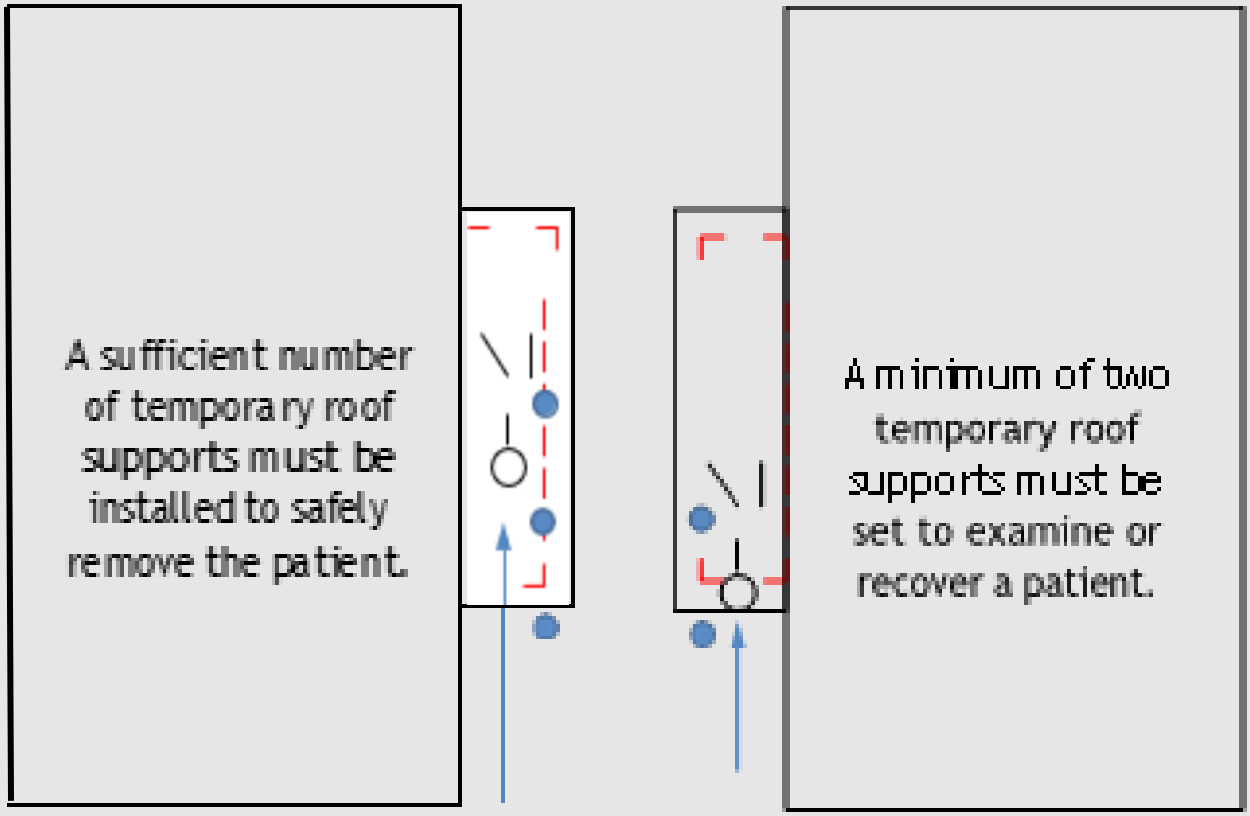

ROOF TEST
ROOF TEST
ROOF TEST
ROOF TEST
Direction of
Team Travel

FIGURE 6



Note: If the team locates a missing miner under an area of unsafe roof and has found sufficient roof supports, the supports must be installed as shown in Figure 4 and Figure 5. If, however, the team locates a missing miner and has not found a sufficient number of roof supports (as shown in Figure 4 and Figure 5), the minimum amounts shown in Figure 6 can be installed to safely access the area, assess the miner and pull him/her from underneath the unsafe roof and provide necessary treatment.

MINE RESCUE DISCOUNTS AND INTERPRETATIONS

Surface Discount Sheet
Judge #1

Time - Hours:_____ Minutes:_____ Seconds:_____ **Discounts**

1. Apparatus improperly assembled with no soda lime, each apparatus — 100 x____=____
2. Apparatus improperly adjusted to the wearer, each infraction — 1 x____=____
3. Apparatus part or parts worn or deteriorated so as to be dangerous to wearer, each person — 8 x____=____
4. Failure to follow prescribed procedures for going under oxygen, each person — 3 x____=____
5. Failure of team member to be clean shaven in the area that affects a good face-to-facepiece seal, each infraction — 15 x____=____
6. Failure of captain to examine each apparatus and have captain's examined before entering the mine, each apparatus, each infraction — 2 x____=____
7. Team member not wearing identification, protective clothing, including safety shoes, hard hat, permissible cap lamp, self-rescuer, each infraction — 2 x____=____
8. Failure of team captain to mark date and team position number on the check board at mine portal or fresh air base, or start timing device, each omission — 4 x____=____
9. No work will be done prior to starting the clock — 4 (total) _____
10. Failure of team to "count off" before entering or leaving the mine — 2 x____=____

_____ **Total Discounts** _____

Judge's Signature

MINE RESCUE DISCOUNTS AND INTERPRETATIONS

Surface Interpretation
Judge #1

1. Apparatus not meeting manufacturer's life critical specifications during use. For example, no soda sorb in the unit.

2. Shoulder straps, chest straps, etc., that are twisted or not fastened. (Separate discount for each strap.) This discount will be applied if the team captain or team member does not correct it when the team goes under oxygen. Once the team has entered the course, no further penalty can be assessed by the judge.

3. Holes in the breathing tubes or straps worn to the extent that they break during working of the problem while still at the fresh air base; should not be discounted if they are replaced prior to starting work in the mine.

4. This will depend on type of apparatus used; the proper procedure will be outlined in the apparatus section. Once the team has entered the course, no further penalty can be assessed by the judge.

5. If leakage occurs to the point to where the bottle needs to be changed, this discount will apply.

6. The captain must examine the apparatus of team members and have a team member examine the captain's apparatus before entering the mine. The person making the check must obtain assurance from person being checked that he/she is all right (asking if person is okay will suffice).
7. Self-explanatory.

8. Captain must mark date and team position number on check board after clock is started, and the captain must stop the clock after the maps are turned in.

9. Self-explanatory; excluding testing of portable communication systems.

10. This can be done at any time after the clock is started, but must be done prior to team entering the mine for the first time. It does not have to be done prior to checking portals. Hand or audible counting off is acceptable. It is not necessary to count off upon reentry or leaving mine; however, the team is also required to count off when completing problem.

MINE RESCUE DISCOUNTS AND INTERPRETATIONS

Underground Discount Sheet
Judge #1

Discounts

1. Breathing external air while working the problem inby the fresh air base, each team member, each infraction — 15 x____=____

2. Team not following proper procedure in case of apparatus failure, each infraction — 10 x____=____

3. Failure of team to stop within 50 feet of the fresh air base or at the shaft station to perform personnel and apparatus checks, upon their first entry into the mine — 4 (total) ____

4. Team member(s) not making apparatus check after removing apparatus to traverse restricted clearance or after apparatus has sustained damage from impact (each person, each incident) — 4 x____=____

5. Apparatus examination exceeding 20-minute intervals — 5 x____=____

6. Failure to use posted hoisting signals, each infraction — 1 x____=____

7. Failure to close shaft station gate — 5 x____=____

8. a. Failure of the captain to indicate to the team he/she has recognized bad ground.
   b. Failure of the captain to verbally indicate he/she is checking the back or roof:
      1. at intersections, shaft stations, rooms, faces, and mine openings;
      2. at all points of farthest advance;
      3. before building or erecting any structure;
      4. upon passing through any barricade, stopping, bulkhead, air lock, door, check curtain, or similar barrier;
      5. at the location of fire or intense heat.
   c. Any team member performing work or moving into any part of

an area during a team stop before the captain has visually checked the ground conditions min that part, each infraction 5 x____=____

9. Failure of the captain to mark the date and his/her initials at the point of farthest advance of the team in any direction such as at stoppings, faces of rooms and drifts, water over knee deep, impassable falls, barricades, fires out of control, and at the location of any live persons or bodies, each omission (maximum 10 discounts) 2 x____=____ (10 max.)

10. Captain or other team member doing anything to endanger himself/herself or other team members, 15 points each team member so endangered, each infraction, each occurrence 15 x____=____

11. Failure of team to explore or examine workings systematically and thoroughly, each infraction 25 x____=____

12. Teams must be checked immediately before entering smoke 5 x____=____

13. Failure to locate, seal, or extinguish fire, if possible, without undue delay 50 x____=____

14. Failure to notify the fresh air base when an air/gas mixture has Reached its explosive range. 10 x____=____

15. Failure to bring live person to surface or fresh air base by the end of the problem, each omission 50 x____=____

16. Failure to locate bodies and/or live persons, each omission 50 x____=____

17. Transporting survivor in unexplored territory, leaving survivor unattended, and moving survivor in any direction except toward the fresh air base, each infraction 6 x____=____

18. The team performing an act that may result in the death or injury of survivor(s), each infraction 50 x____=____

Comments:

_____
_____
_____
_____
_____
_____
_____
_____

_____ Total Discounts_____

Judge's Signature

MINE RESCUE DISCOUNTS AND INTERPRETATIONS

Underground Interpretation
Judge #1

1. Working all or part of problem without a facepiece or working with inhalation hose disconnected.

2. Proper procedure would depend on type of apparatus; however, team must proceed to fresh air base immediately.

3. This check must be made: at the first stop, with all team members past the portal or off the cage (this does not apply to checking mine entrances prior to working the problem); before the captain exceeds 50 feet from portal or cage.

4. This apparatus check must be made as soon as all team members have passed through the restricted area and before any other work is done. Additionally, this apparatus check must be made immediately after any apparatus has sustained a blow which causes damage to it. Not to be assessed for minor incidental contacts.

5. Self-explanatory.

6. Hoist shaft signals will be posted at shaft stations and will be used to notify the hoistman of intended movement and cage release.

7. Self-explanatory.

8.
    a. Must so indicate before any other team member passes the placard this applies each time such a placard is reached; when retreating, the rear captain must do this.
    b. 1. Must be so indicated before physically entering the area.

        2. Includes checking in front of any physical barrier to advancement.

        3. Including erecting or breaching stoppings, barricades, curtains, etc.

        4. Must be so indicated before physically passing through.

        5. Must be so indicated immediately upon reaching the placard indicating fire or intense heat.

c. This means the captain's physical presence is necessary before any part of an area can be considered as having been examined.

9. Self-explanatory.

10. Examples of endangerment include, but are not limited to:
    a. 15 points will be assessed for each team member who:
        1. travels under bad roof or ground;
        2. travels into water over knee deep or into a sump containing water over knee deep;
        3. travels over or under an open ore pass or ore pocket into which they could fall or be injured by falling objects;
        4. advances past a sign indicating intense heat or fire out of control;
        5. fails to take body substance isolation (BSI) precautions before physically contacting a patient;
        6. fails to wear apparatus while examining the entrances to mine openings; and
        7. enters smoke and is not connected to a teamline.
    b. The entire team will be considered endangered and 75 points assessed for:
        1. failure to check a shaft for possible damage, or the presence of fire or flooding, prior to traveling through it. For contest purposes, this check may be done by placing combustible materials on the cage and having the cage lowered to the level to be explored, then raising it to the collar.
        2. not having non-sparking tools in a gassy mine or when explosive gases are found in a non- gassy mine.
        3. changing conditions of the mine ventilation system in such a manner that an explosive mixture is moved over an ignition source or unexplored area. If a team explores all sides of an overcast or an undercast, both ends of a ventilation shaft, or the top and bottom of shafts when the shaft cannot be traveled, the in-between areas are considered explored for ventilation purposes.
        4. continuing exploration after conditions are found to indicate an imminent explosion is possible by the presence of an explosive mixture and the evidence of fire (smoke or carbon monoxide) and the location of the fire is unknown. A team must continue to explore if it knows there is a continuous nonexplosive separation between the explosive mixture and the evidence of fire.
        5. continuing exploration after an ignition source (i.e., electric or battery-powered equipment or any communication device that is not intrinsically safe) is found in an explosive mixture.

6. utilizing electric or battery-powered equipment in explosive air/gas atmosphere. Ignition sources would include any communication device, unless designated as sound-powered or intrinsically safe.
7. failure to take a functioning communication system into the mine or committing an intentional act that causes the communications system to break or fail while underground.
8. removing a post that has been set to correct and support an unsafe roof condition.
9. Enters smoke and is not connected to the lifeline.

11. This will be assessed for not exploring all areas of the mine that can be explored without endangering team, if problem requires entire mine to be explored. All accessible areas must be tied across and behind before advancing. Where crosscuts are blocked, no team member may advance more than three (3) feet beyond the second intersection before tying across and/ or behind into all unexplored areas that intersect. This may require building an air lock or returning to the fresh air base and exploring into other drifts at the discretion of the team and according to conditions of the mine. Shafts must be checked for possible damage, water, or fire, and must be traveled to be considered explored. All shafts must be traveled, if possible, before proceeding more than three (3) feet beyond the second intersection.

12. Personnel checks, not necessarily an apparatus check. The person making the check must obtain assurance from person being checked that he/she is all right (asking if person is okay will suffice).

13. Sealing or fighting a fire does not relieve the team of the responsibility of systematic exploration.

14. Failure to notify the fresh air base when an air/gas mixture, which reached its explosive range, has been encountered.

15. Self-explanatory.

16. Self-explanatory.

17. If a person is found behind a barricade or in a refuge chamber in a contaminated area, and the barricade or refuge chamber is not breached, the team may advance.

18. An act which does not endanger the team, but may injure or result in the death of a survivor. Some examples of this would be:
    a. Breaching a barricade with an IDLH atmosphere outside
    b. Directing an IDLH atmosphere over survivor(s) through a change in ventilation

c. In the case of multiple survivors, leaving the higher priority patient and taking a less injured patient out
d. Improperly protecting survivor(s) from an IDLH atmosphere
e. Continuing exploration beyond a miner (potential survivor) who is clearly visible to the team and located under unsafe roof after an adequate supply of roof support materials have become available for his/her safe recovery (applies to similar areas as shown in Figure 4 through Figure 6 under the "Roof or Ground Control" section).
f. Continuing exploration beyond a miner (survivor) who has made verbal contact with the team but is located in an isolated/barricaded area when a means to safely evacuate the miner has been found.
g. When a team finds a patient(s), either by visual or verbal contact, every effort must be made to remove them safely and promptly to the fresh-air base. Visual contact will require the captain's presence in the area. Verbal contact is any voice communication from the patient(s) that can reasonably be expected to be heard by the team. Maximum of one (1) live person may be found in each refuge alternative.
h. If there are 2 or more patients and means are provided or found, then visual contact will take precedence over verbal.
i. When a team reaches a patient(s) (visual contact), every effort must be made to remove them safely and promptly to the fresh-air base. Exploring ahead of the location will be limited to the stopping point of the tail captain. The stopping point of the tail captain will be determined from the stopping point at or outby the patient(s). Once a team reaches a patient(s), (visual contact), the team may perform any function during this team stop; however teams will not be allowed to build ventilation controls, timber unsafe roof or pump water unless necessary to recover the patient(s). The team may not continue to explore while exiting with the patient, unless required by the problem design. Once the team starts to exit the mine with a patient(s) the team must continue directly to the fresh air base or surface before retrieving other patient(s).
j. If the team is in verbal or visual contact with a patient, and the team is unable to immediately reach the patient due to the conditions of the mine, the team may continue to explore if necessary for its own or the patient's safety. During this exploration process, the team may perform any function during team stops. Every patient shall be safely and promptly removed from the mine as soon as means and/or materials are available.
    1. If a team finds a patient(s) under or inby an area of unsafe roof and has the necessary roof support available to recover the patient(s), the team must stop and recover the patient. If a team subsequently finds necessary roof support to recover the patient(s), the team must stop (prior to the No. 5 team member passing the roof support), retrieve the

roof support and recover the patient(s). The team may perform any function during this team stop; however, teams will not be allowed to build ventilation controls, timber unsafe roof or pump water unless necessary to recover the patient(s).

2. If a team finds a patient(s) inby an area of water over knee deep and has a pump available to pump the water, the team must stop and recover the patient. If a team subsequently finds a pump, the team must stop (prior to the No. 5 team member passing the pump), retrieve the pump, pump the water and recover the patient(s). The team may perform any function during this team stop; however, teams will not be allowed to build ventilation controls, timber unsafe roof or pump water unless necessary to recover the patient(s). Exploration may continue, if necessary, to ventilate an explosive mixture prior to energizing the pump.

MINE RESCUE DISCOUNTS AND INTERPRETATIONS

Surface Discount Sheet
Judge #2

		Discounts
1.	Failure to take necessary permissible equipment and gas detecting devices to work the problem, each omission	4 x____=____
2.	Gas detectors, testers, and/or indicators failing to function properly and not corrected before entering the mine, each infraction	4 x____=____
3.	Testers or detectors improperly assembled or defective parts used	8 (total) ____
4.	Failure to secure extra apparatus to stretcher, each omission	4 x____=____
5.	Physically comparing team map with fresh air base map, once the team has entered the mine.	25 (total) ____
6.	Failure of the team to complete the problem within the established time limit.	25 (total) ____
7.	Any team whose member(s) intentionally disturb or destroy any component on a competition field will immediately be assessed this discount. Repeated offense may result in team disqualification at the discretion of the Contest Director.	100 (total) ____
8.	Failure to following written instructions.	4x____=____

_____ Total Discounts_____

Judge's Signature

MINE RESCUE DISCOUNTS AND INTERPRETATIONS

Surface Interpretation
Judge #2

1. Failure to take necessary permissible equipment or testing devices underground, discount should be assessed even if teams return to fresh air base to pick up necessary equipment.

2. Faulty or inadequate equipment must be repaired or replaced. (This includes instruments used beyond their designed limits or range.)

3. If any questions exist, the equipment should be checked by the judges after the completion of the problem in the presence of the team captain.

4. Extra apparatus must be secured to stretcher to prevent it from falling off.

5. Teams may place reference or other information on both maps before proceeding into the mine. After the team has completed its 50 foot check, no side by side comparison of the maps while the team is at the fresh air base. Teams can edit their maps while at the fresh air base but no side by side comparison is allowed. All communication with the fresh air base for map edits has to be through the communication system and not in person.

6. Teams are required to complete the problem in the established time limit: explore all accessible areas of the mine; install roof supports, pump water and/or reventilate (if needed); extinguish or seal all fires; locate all missing miners; and bring all survivors to the surface.

7. Self-explanatory.

8. Failure to follow written instructions listed by contest director. The written instructions must be clearly pointed out prior to team starting the clock. Written instructions shall not contradict other rules.

MINE RESCUE DISCOUNTS AND INTERPRETATIONS

Underground Discount Sheet
Judge #2

	Discounts
1. Failure to make necessary gas tests where required, each gas, each omission	1 x____=____
2. Improper procedure when testing with gas detectors, each gas, each infraction	1 x____=____
3. Intentional causing of a test instrument to inflate faster than tests indicate that it should, each infraction	1 x____=____
4. Less than 5 members entering, working or completing problem, each person	8 x____=____
5. Team members running through problem (both feet have to be off the ground at same time).	8 (total) ____
6. Team member talking to an unauthorized person without permission of the judges or contest officials, each infraction	5 x____=____
7. Intentionally detaching/severing Lifeline while the team is advancing or retreating.	5 (total) ____
8. All team members must be connected or have hold of the team line when the team is traveling. When stopped, in air clear of smoke, at least one person must have hold of the team line. If tag lines are used between team members and the team line, they shall be no longer than 3 feet in length.	2 x____=____
9. Failure to erect temporary barricade, stopping or regulator when necessary, each infraction	10 x____=____
10. Failure to erect temporary barricade, seal, or stopping reasonably airtight, each infraction	2 x____=____

11. Failure to make necessary ventilation changes or changing ventilation or electric power before the effects of such changes are known, each infraction 15 x____=____

12. Failure to properly secure survivor to stretcher; failure to cover survivor with blanket (unless first aid procedures indicate otherwise); or placing survivor on stretcher in such a way as to foul proper operation of apparatus, each omission 4 x____=____

13. Survivor care:
    a. Failure to ~~adequately examine and assess each person found in the mine for possible injury or illness, maximum for each survivor~~ conduct an initial assessment. 4 x____=____
    b. Failure to properly treat any ~~injury or illness which is, or should have been, revealed by the examination, maximum for each survivor.~~ immediate life threat. 4 x____=____

14. Failure to follow proper procedure when putting apparatus on survivor, each infraction 5 x____=____

15. Assistance given by supposedly unconscious person, each infraction 5 x____=____

Comments:

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_____
_____

_____ **Total Discounts** _____

Judge's Signature

MINE RESCUE DISCOUNTS AND INTERPRETATIONS

Underground Interpretation
Judge #2

1. Tests for gases must be made at face areas, stoppings, doors, regulators, barricades and other areas where conditions are unknown. When stops are made at the openings of crosscuts, intersections, or drifts turned off the drift that is being traveled, separate gas tests must be made across each entry within 25 feet of the rear captain's position. No place shall be passed without first checking the condition of that place. That is, if a room is turned from the entry, that room shall be checked before examining the entry beyond the opening. This does not necessarily hold true in cases of entries. In cases of entries turned from the entry being traveled, it is a matter of choice which entry is to be followed and many things must be taken into consideration in making the choice. However, all places must be checked before that place is passed. A team will be considered to have passed an opening or intersection when the No. 5 member is past the opening. All areas that have been cleared of smoke and toxic or dangerous gases that the teams elect to travel through must be rechecked prior to the team's reentering. Upon re-entry into these areas where the ventilation has been changed, teams shall make gas tests (rib-to-rib) at all openings along the route they travel.

2. This will depend on type of instrument used. Improper procedure when testing includes the location of the instrument when testing or using a gas detection device beyond its limits or range. For example, a methane detector must be held overhead when testing because methane (CH_4) is light and will be found in high places near the back or roof. Nitrogen dioxide (NO_2) is relatively heavy and will be found in greater concentrations along the floor and in low places. Therefore, this test must be made with the tester below the waist. Carbon monoxide (CO) is slightly lighter than air so this test must be made at chest height.

3. Self-explanatory.

4. This does not apply to checking mine entrances prior to working the problem.

5. Team members running through problem both feet have to be off the ground at same time.

6. Do not hesitate to assess this discount; however, explain and name unauthorized person on discount card and state instructions given, if known.

7. Self-explanatory.

8. The No. 5 member may move from side to side to give captain more area when team is connected by the team line as long as he/she does not pull or give line. All team members must hold or be attached to the team line at all times while traveling. If taglines are used between team members and the team line, they shall be no longer than 3 feet in length.

9. Stoppings, doors, regulators, and barricades require construction of temporary stoppings by a team before a team may make openings in the pre-existing stoppings, doors, etc. Doors shall not be opened without prior knowledge of the effects of the mine ventilation system, unless a temporary stopping has been erected. Regulators shall not be opened without prior knowledge of the effects of the mine ventilation system, unless a temporary regulator has been erected. This does not apply to existing check curtains used to direct the air current. When retreating out of a barricade or coming back through a stopping where an air lock has been erected, it will not be necessary to air lock on the way out, if this will not change any existing ventilation.

10. During a ventilation change, a curtain that directs airflow is required to be upgraded to a temporary barricade, seal, or stopping and must be fastened at top and sides.

11. Teams must inform the official in charge before changing the ventilation or electric power, and such things as explosive gases and the safety of trapped miners and rescue personnel must be considered. Teams do not have to exit the mine to change power or ventilation. Teams can inform the fresh air base attendant by approved communication devices available, and the fresh air base attendant must inform the official in charge before changing ventilation or electric power. Informing the official in charge of the fresh air base does not relieve the team of the responsibility of their decision.

12. Survivor must be secured to stretcher by at least two bandages or straps, one around trunk of body and one around legs, covered with blanket, and placed so as not to crimp air hoses. (Hands of unconscious person must be secured.)

13. The maximum discount (4) will be assessed for each patient, as follows:
    a. This will be based on a ~~rapid head-to-toe~~ initial assessment of the patient as described in the ~~Eleventh~~ current first aid rules ~~Edition of Brady "Emergency Medical Responder – First on the Scene," Chapter 13.~~
    b. If any immediate life threating injuries are found on any patient, treatment will be administered per the appropriate chapter in the ~~Eleventh Edition of Brady "Emergency Medical Responder – First on the Scene."~~ Current first aid rules.

Teams shall carry adequate materials to cover life threating injuries as listed in the current first aid rules.

14. To properly protect a survivor, a team must provide an approved 4-hour oxygen breathing apparatus and/or an approved 1-hour oxygen-generating unit. If a survivor is unconscious, an approved oxygen breathing apparatus equipped with a full face-piece must be used. However, if a survivor is found and is wearing an approved 1 hour oxygen-generating self-contained self-rescue (SCSR) device, the team will not be required to replace it with one of the above mentioned units unless the SCSR has been depleted.

15. Applies to person sitting up unassisted or moving arms so as to help in putting on apparatus. (Only applies if person is member of the team and not an MSHA employee.)

MINE RESCUE FIELD COMPETITION
TEAM DISCOUNT SUMMARY SHEET

Team No.: _____

Company Name: _____

Team Name: _____

Judge #1 Surface: _____

Underground: _____

Judge #2 Surface: _____

Underground: _____

Written Test: _____

Map: _____

Working Time: Hours:_____ Minutes:_____ Seconds:_____

Total Discounts
Excluding average time: _____

Time Review Completed: _____

I certify that I have read and reviewed all discounts listed above.

_____ _____

Team Captain Review Judge

MINE RESCUE FIELD COMPETITION
WRITTEN EXAMINATION DISCOUNT SUMMARY SHEET

Company Name: _____

Team Name: _____

Draw Number: _____

Discounts

For each incorrect answer for each person (1 discount)

No. 1 person	1 x____=____
No. 2 person	1 x____=____
No. 3 person	1 x____=____
No. 4 person	1 x____=____
No. 5 person	1 x____=____
No. 6 person	1 x____=____
No. 7 person (Command center attendant)	1 x____=____

Note:
Total Discounts is the aggregate sum of the six best test scores (tests with least amount of discounts). For teams with only six members, Total Discounts will include the aggregate sum of all six test scores.

_____ **Total Discounts** _____

Judge's Signature

MINE RESCUE FIELD COMPETITION
MAP DISCOUNT SUMMARY SHEET

Company Name: _____

Team Name: _____

Draw Number: _____

Discounts

Team Map:

1. Failure to record information on map 1 x____=____

2. Not recording information accurately on map (within 6 feet of actual location measured from the center point of the object), each infraction 1 x____=____

Fresh Air Base Map:

1. Failure to record information on map 1 x____=____

2. Not recording information accurately on map (within 6 feet of actual location measured from the center point of the object), each infraction 1 x____=____

_____ **Total Discounts** _____

Map Examiner's Signature

MINE RESCUE FIELD COMPETITION
TIME DISCOUNT SUMMARY SHEET

Company Name: _____

Team Name: _____

Draw Number: _____

Total Time

Total time will be rounded off to the next highest minute.
(Total average time will also be rounded off to the next highest minute.) _____

Discounts

For every three minutes over the average time. 1 x____=____

_____ **Total Discounts** _____
Timekeeper's Signature

PROCEDURES FOR GETTING UNDER OXYGEN
DRAEGER BG-4 BREATHING APPARATUS

Procedures for getting under oxygen:

1. Prior to donning the apparatus, make sure a filled cylinder, a fresh soda lime pack, and an ice block for the breathing air cooler are installed. Don the apparatus and adjust the harness and belt.

2. Don the facepiece by spreading the head harness with hands; put chin into chin support and pull harness over the head. Tighten the chin straps first, then the temple straps, and then the top head strap. The facepiece must be sufficiently tight on the face to prevent leakage of the breathing air which could shorten the duration of the apparatus.

3. Open cylinder valve fully.

4. Check the digital pressure gauge to see that a sufficient oxygen supply remains. The green LED light should be displayed. Press the by-pass valve to check the by-pass valve operation.

5. Check the facepiece tightness by tightly closing both breathing hoses and inhaling. The facepiece should collapse against the face, indicating there are no leaks.

6. Each team member and apparatus should be rechecked by the team captain. The team captain and apparatus should be rechecked by a team member.

Items to be checked prior to going underground and at 20 minute intervals:

1. Visually check apparatus.
2. Check pressure gauge.
3. Question member as to member's ability to continue.

PROCEDURES FOR GETTING UNDER OXYGEN
BIOMARINE BIOPAK 240R BREATHING APPARATUS

Procedures for getting under oxygen:

Pre-Use Inspection

1. If apparatus is stored in a ready to use condition, Turn-Around Maintenance Tag attached to harness (date less than one year old). Before donning the apparatus install frozen Ice Canisters, wet sponges, secure lid.
2. If apparatus is not stored in a ready to use condition, prior to donning the apparatus, complete the Turn Around maintenance procedures as outlined in the BioPak 240R Benchman Instruction Manual, Revision I, wet sponges and install the CO2 absorbent cartridges (Cartridges dated within three years). Install a frozen Coolant Canister, secure lid.

Donning, Getting under Oxygen

1. Don the apparatus, tighten shoulder straps, buckle and adjust waist strap, connect and adjust chest strap.
2. Attach facemask to hose adapter and lock in place.
3. Place facemask harness overhead, center chin in chin cup, hold facemask to face and snug bottom (chin) straps first, then the upper (temple) straps, and then the top (head) strap (if supplied). Turn on oxygen cylinder. A poor facemask seal will cause a significant decrease in duration.
4. Perform negative pressure check by collapsing the inhalation hose and inhaling. If the mask collapses in on your face, mask fit is good and exhalation valve is OK.
5. Perform positive pressure check by collapsing the exhalation hose and exhaling. If the mask pushes away from face, mask fit is good and inhalation valve is OK.
6. Completely open the oxygen cylinder all the way.
7. Inspect Chest gauge minimum 3000 psi and TRIM flashing Green.
8. The team captain should recheck each team member and apparatus. A team member should recheck the team captain and apparatus.

Items to be checked before going underground and at 20-minute intervals.

1. Visually check apparatus.
2. Check chest mounted pressure gauge.
3. Question member as to member's ability to continue.

PROCEDURES FOR GETTING UNDER OXYGEN
BIOMARINE BIOPAK 240S BREATHING APPARATUS

Procedures for getting under oxygen:

Pre-Use Inspection

1. If apparatus is stored in a ready to use condition, Turn-Around Maintenance Tag attached to oxygen cylinder valve (date less than one year old). Before donning the apparatus install frozen Gel Tube Insert into cooling canister, secure lid.
2. If apparatus is not stored in a ready to use condition, prior to donning the apparatus, complete the periodic long term maintenance procedures as outlined in the BioPak 240S Benchman Instruction Manual, Revision K. Fill and install the CO2 absorbent canister (LimePak dated within one year). Install a frozen Gel Tube Insert into cooling canister, secure lid.

Donning, Getting under Oxygen

1. Don the apparatus, tighten shoulder straps, buckle and adjust waist strap, connect and adjust chest strap.
2. Place facemask harness overhead, center chin in chin cup, hold facemask to face and snug bottom (chin) straps first, then the upper (temple) straps, and then the top (head) strap. Turn on oxygen cylinder. A poor facemask seal will cause a significant decrease in duration.
3. Perform negative pressure check by blocking the inhalation port with hand and inhaling. If the mask collapses in on your face, mask fit is good and exhalation valve is OK.
4. Perform positive pressure check by covering the exhalation port with hand and exhaling. If mask pushes away from face; mask fit is good and inhalation valve is OK.
   Option: If hoses are connected to the facepiece prior to donning.
   a. Don facemask as outlined above (item 2).
   b. Open cylinder valve fully counterclockwise and back 1/4 turn. Note whistle chirp.
   c. Perform negative pressure check by pinching off the inhalation hose and inhaling. If the mask collapses in on your face, mask fit is good and exhalation valve is OK.
   d. Perform positive pressure check pinching off the exhalation hose and exhaling. If mask pushes away from face, mask fit is good and inhalation valve is OK.
5. Check chest-mounted pressure gauge, 2700 – 3000 psi within one minute.
6. The team captain should recheck each team member and apparatus. A team member should recheck the team captain and apparatus.

Items to be checked before going underground and at 20-minute intervals.

1. Visually check apparatus.
2. Check chest mounted pressure gauge.
3. Question member as to member's ability to continue.

GLOSSARY OF TERMS

ACCESSIBLE - Able to be traveled into; not impassable.
ADIT - A nearly horizontal passage from the surface by which a mine is entered.
AIR LOCK - An area in the mine closed at both ends by two doors or two bulkheads. An air lock is used to prevent mixing of different atmospheres while still permitting miners to enter and exit.
AIR SHAFT - Shaft used exclusively for conducting air.
AIR SPLIT - The division of an air current into two or more parts.
AIR TRACK DRILL - A heavy drill mounted on crawler tracks.
AIRWAY - Any passage through which air is flowing.
ALTERNATE - Optional eighth person qualifying to participate as a mine rescue team member. They must be part of the 8 person team and be isolated with the team prior to the competition. The alternate can assist the team prepare for the competition but cannot actively participate during the working of the problem; unless one of the working team members goes down during the problem.
ATMOSPHERIC PRESSURE -Force exerted by air. Atmospheric pressure is measured on a barometer.
AUXILIARY FAN - A small, portable fan used to supplement the ventilation of an individual working place.
AUXILIARY VENTILATION - Portion of main ventilating current directed to face of dead-end entry by means of an auxiliary fan and tubing.
BACK FILL - The rough material used to refill a place from which the earth has been removed.
BACK/ROOF - That part of an opening which is nearest the surface in relation to any portion of the workings of the mine, the roof. Overhead surface of an underground opening.
BACKUP TEAM - The rescue team stationed at the fresh air base as a "backup" for the working team beyond the fresh air base.
BAFFLE - A device used to deflect, check or regulate the flow of air.
BARRICADE - Enclosed part of mine to prevent inflow of noxious gases from a mine fire or explosion. This may be done by doors or by building one or more airtight walls using any available materials such as rock, wood, brattice cloth, mud, clothing, etc., so as to enclose a maximum quantity of good air. If contact is not made with person behind the barricade, conditions inside the barricade will be unknown.
BARRICADING - Enclosing part of mine to prevent inflow of noxious gases from a mine fire or an explosion.
BATTERY LOCOMOTIVE - Battery powered machine used for moving cars within the mine.
BATTERY CHARGING STATION - Area set aside for charging and storing batteries.
BATTERY OPERATED EQUIPMENT – Any equipment powered by batteries.
BELT FEEDER - The dump end of a belt system. To disperse ore on the belt.
BLASTING BOX - The unit used for firing of one or more charges electrically.

BLASTING CAPS - A detonator containing a charge of detonating compound, which is ignited by electrical current or the spark of a fuse used for detonating explosives.
BOREHOLE - Any deep or long drill hole. It may be a source of air, supplies and communications in an emergency.
BORER - A device for making large holes.
BRATTICE CLOTH - Fire-resistant fabric or plastic used in a mine passage to control ventilation.
BRIEFING -Session held before a team goes underground to inform team members of conditions underground and give them their work assignment.
BULKHEAD (same as STOPPING) - A temporary wall or partition constructed across a passageway to direct the ventilating air. Can be modified or removed if needed.
BUMP TEST – A functional test, defined as a brief exposure of the monitor to a concentration of gas(es) in excess of the lowest alarm set-point for each sensor for the purpose of verifying sensor and alarm operation and is not intended to be a measure of the accuracy of the instrument.
CAGE - A shaft conveyance used in hoisting personnel and materials.
CAVED - Ground which has fallen.
CAVED IMPASSABLE - For the duration of the problem, a cave which is incapable of being passed, traveled, crossed, or surmounted, but allows some ventilation flow.
CAVED TIGHT - Ground caved in to prevent access and allows no ventilation flow.
CHOCKS - Wedge shaped blocks to put under vehicle wheels to prevent movement.
CHUTE/ORE PASS - Vertical or inclined passageway for downward movement of ore.
CLEAR AIR - An atmosphere which is free of smoke and all dangerous and/or harmful concentrations of flammable, combustible, noxious, and or toxic contaminants.
COMMAND CENTER ATTENDANT - The command center attendant will be isolated from visual contact with the field and will be stationed at the command center during the working of the problem and will maintain voice communications with the team using either a portable hard wire communication system or a wireless (radio) system.
CONTINUOUS MINER - A mining machine designed to remove ore from the face and load it into cars or conveyors.
CRIB BLOCKS - Blocks used for support.
CROSSCUT - A horizontal opening driven across the direction of the main workings; a connection between the two drifts or tunnels.
CURTAIN - Brattice cloth, canvas or plastic curtain used to deflect or direct air into a working place. Constructed in a manner to allow the passage of miners and machinery.
CUTTING MACHINE - A power (electric) driven machine used to undercut ore.
DEBRIEFING - Session held when teams return to the surface after completing an assignment to review what they saw and did.
DETONATING FUSE - A round, flexible cord containing a center core of high explosives (Primacord).
DETONATOR - A device used for detonating explosives.

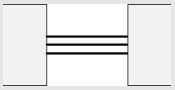
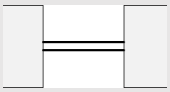
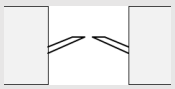
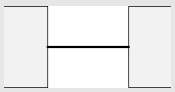
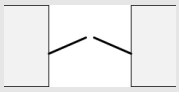
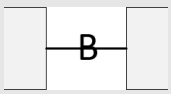
DISTRIBUTION BOX - An enclosure through which electric power is carried to one or more cables from a single incoming feed line.
DOWNCAST - An opening through which fresh ventilating air is drawn or forced into the mine; the intake.
DRIFT/ENTRY - A passage underground.
EXHAUST - The air course along which the air of the mine is returned or conducted to the surface.
FACE/RIB - Vertical surface of an underground opening.
FEEDER - Small cracks in rock strata from which gas escapes.
FILL - Any material that is put back in place of the extracted ore.
FLOOR - That part of any underground opening upon which one walks.
FOOTWALL - Lower side of a dipping ore body.
FRESH AIR BASE - Base of operations from which the rescue and recovery teams can advance into irrespirable atmospheres.
FRONT-END LOADER - Self-propelled machine used for moving or loading muck.
HANGING WALL - Upper side of a dipping ore body.
HOLE CHARGED - A drilled hole that is charged with explosives ready to be blasted.
IMPASSABLE - Incapable of being passed, traveled, crossed, or surmounted.
INACCESSIBLE AREAS - All areas of the mine where team travel is blocked by one of the following conditions: seals, unsafe roof, intense heat, inextinguishable fires, water over knee deep, caved impassable falls, piles of ore, or the top of an overcast.
INCLINE/SLOPE - A non-vertical shaft, usually on the dip of a vein.
INTAKE - The passage through which fresh air is drawn or forced into a mine.
INTENSE HEAT - Air heated to the extent that it cannot be entered.
INTERSECTION - For contest work, any area driven three (3) feet or more off a drift.
LAGGING - Materials used for flooring or shoring.
LEAD WIRE - Wire used to fire electric detonators.
LIFELINE - For teams using a hardwire communication system, the lifeline is the cable that links the team to the fresh air base. For teams using a wireless communication system, the lifeline is a rope, wire or cable that links the team to an area free of smoke. In this case, the lifeline must be used before any team member enters or travels through smoke.
LINE BRATTICE - Fire-resistant fabric or plastic partition used in a mine passage to direct the air into the working place. Also termed “Line Canvas or Line Curtain.”
LOADING MACHINE - A machine used to load broken ore or rock.
LONG HOLE DRILL - A drill using sectional steel to drill holes to greater depths.
LOOSE BACK - Unstable overhead surface which must be controlled before entry.
LOOSE RIB - Unsupported loose ground on the side of the drift.
MAGAZINE - A storage place for explosives or for detonators.
MANDOOR - Door installed in a permanent stopping (bulkhead) to allow persons to travel from one drift to another.
MANHOLE - A refuge hole constructed in the side of a drift.

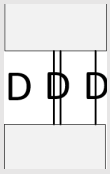
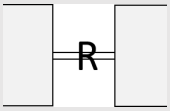
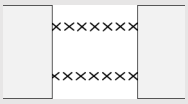
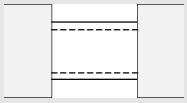
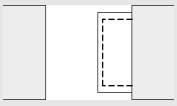
MANTRIP - A vehicle (mobile or track-mounted) used to transport personnel to and from a work area.
MINE DOOR - A large, hinged door used to close off a
mine entry.
MISFIRE - The complete or partial failure of a blasting charge to explode as planned.
MOTOR - A track-mounted machine used for transporting ore or supplies.
MULTI-GAS INSTRUMENT - Gas detector capable of continuously and simultaneously measuring atmospheric concentrations of oxygen (O2), methane (CH4), carbon monoxide (CO) and at least one other toxic gas (e.g. nitrogen dioxide -NO2).
ORE PASS - A vertical or inclined passage for the downward transfer of ore.
OVERCAST - Enclosed airway built at an intersection of mine passages that permits one air current to pass over another air current without mixing.
PERMANENT STOPPING (same as PERMANENT BULKHEAD) – For the duration of the problem, a ventilation control which cannot be removed or modified.
PERMISSIBLE - A machine, material, apparatus or device which has been investigated, tested and approved by MSHA for use in gassy mines.
PILE OF ORE – Muck pile that can be moved or be explored across unless otherwise noted by placard.
PILLAR - A column of ore or rock left in place.
POST - A mine timber.
RAISE - A vertical or inclined opening driven upward.
RAISE CLIMBER - Equipment used in an opening (raise) that is mined upward.
REFUGE CHAMBER - An airtight, fire-resistant room in a mine used as a method of refuge in emergencies by miners unable to reach the surface.
REGULATOR - An adjustable door or opening in a stopping, used to control and adjust the quantity of airflow.
RETURN AIR - The air that has passed through the working areas of the mine.
RIB - The wall of a mine opening.
ROOF BOLTER - A machine designed to drill holes in the roof and install bolts.
ROOF BOLTS/ROCK BOLTS - A long bolt inserted and anchored in holes drilled in the rock.
ROOF JACKS - A roof support designed for immediate temporary use.
SCALING BAR - Tool with a flat point and a heel used to pry in a crack of the rock.
SEAL - A stopping built of greater thickness and more substantial construction used to isolate abandoned areas of the mine from the active workings or to isolate a fire.
SHAFT - A vertical opening of limited area compared with its depth, made for finding or mining ore, raising ore, rock or water, hoisting and lowering workers and materials, or ventilating underground workings.
SKIP - A hoisting bucket, which slides between guides in a shaft.
SLUSHER/SCRAPER - A machine for transferring or loading rock by pulling an open bottomed scoop back and forth from the face to the loading point by means of a drum hoist, cables and sheaves.

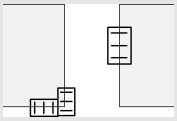
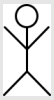
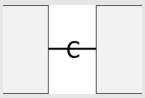
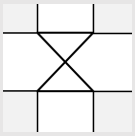
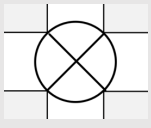
SMOKE – Tiny particles of solid or liquid matter suspended in air.
SPLIT - To divide the air current in two or more separate currents.
STOPE - An excavation in a mine, other than development workings, made for the purpose of extracting ore.
STOPER - A pneumatic hammer drill used for drilling upward.
STOPPING (same as BULKHEAD) - A temporary wall or partition constructed across a passageway to direct the ventilating air. Can be modified or removed if needed.
STULL/PROP - Column of wood or steel used for support of underground openings.
SUMP - An excavation in the shaft or mine made below the mining level to collect mine water.
SUPPLY PLATFORM - Area set aside for storage of materials.
SURVIVOR - Person found alive in the mine.
SWITCH - An electrical switch.
SYTEMATIC EXPLORATION – tying across and behind of all intersecting and adjacent passageways so that the team is never forward (toward the working face) of an accessible, unexplored area.
TAGLINE - Short line no longer than 3 feet hooked from a team member to the team line.
TEAM LINE - A 25-feet long line that links team members together.
TIMBER SET - Tunnel support consisting of a roof beam or arch and two posts.
~~**TYING ACROSS AND BEHIND** - Systematic exploration of all intersecting and adjacent passageways so that the team is never forward (toward the working face) of an accessible, unexplored area.~~
UNDERCAST - An enclosed airway built at an intersection of mine passages that permits one air current to pass under another air current without mixing.
UPCAST - The opening through which the return air is removed from the mine. The opposite of downcast or intake.
VENT BAG - An enclosed airway to direct airflow to a
given area or location.
WINZE - An opening, like a small shaft, sunk from an interior point in a mine.
WORKING PLACE - Any place in or about a mine where work is being performed.

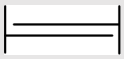
MINE MAP LEGEND

This legend must be used by all teams participating in the Mine Rescue Field Competition. **Any condition and/or descriptive information provided on the corresponding placard shall be spelled out on the team and fresh air base maps next to the respective legend symbol.**

GT	**Gas Test**	For each gas test conducted by the team.
	**Seal**	Seal may be equipped with devices such as sampling tubes or water traps. Seal may be intact, destroyed, damaged, or have openings. Conditions do not change the symbol.
	**Permanent Stopping Intact**	Permanent stopping is intact and airtight (no indication of opening or leakage).
	**Permanent Stopping Not Intact**	Permanent stopping may be destroyed, damaged, or have openings. Therefore, the stopping is not airtight.
	**Temporary Stopping Intact**	Temporary stopping is intact and airtight (no indication of opening or leakage). This symbol is also to be used for any structures built by the team, such as fire seals, airlocks, etc.
	**Temporary Stopping Not Intact**	Temporary stopping may be destroyed, damaged, or have openings. Therefore, the stopping is not airtight.
	**Barricade**	Barricade may be intact, destroyed, damaged, or have openings. Conditions do not change the symbol.

	**Door**	The “D” symbol can be used by itself or included in a permanent or temporary stopping based on its placarded description. Must show if door is open or closed.
	**Regulator**	Regulator may be damaged or destroyed. Must show if regulator is open (how much) or closed. Conditions do not change the symbol.
	**Fire**	Write out placarded description of fire on map beside symbol.
	**Air Movement**	Show arrow in direction of movement as indicated on placard, and, if given, any other information (such as air quantity or air flow velocity, etc.).
	**Water**	Indicate depth (ankle deep, knee deep, over knee deep, etc.)
	**Caved**	Caves are considered inaccessible unless otherwise stated on placard. Caves are not considered airtight unless stated on placard.
	**Unsafe Roof Across Entry Rib-to-Rib**	Symbol used for any indication of questionable roof conditions. May or may not be scalable.
	**Unsafe Roof Partially Across Entry**	Symbol used for any indication of questionable roof conditions. May or may not be scalable.

	**Unsafe Rib or Over- hanging Brow** **NOT IN VISIO**	Symbol used for any indication of questionable rib conditions. May or may not be scalable. Project over rib line area on map.
	**Body**	Deceased person. Indicate position of head and feet when found. Write out placarded information on map beside symbol (name, ID number, burned, etc.).
	**Live Person**	Live Person. Write out placarded information on map beside symbol (name, ID number, sitting, unconscious, etc.).
	**Check Curtain**	Check Curtain may be damaged or destroyed. Conditions do not change the symbol.
	**Line Brattice or Line Curtain or Wing Curtain**	Existing or installed by team. The full extent of the line curtain must be shown.
	**Line Curtain or Wing Curtain**	Line curtain (uninstalled) found by team on competition field and available for use.
	**Overcast**	Overcast may be intact, destroyed, damaged, or leaking. Conditions do not change the symbol.
	**Undercast**	Undercast may be intact, destroyed, damaged, or leaking. Conditions do not change the symbol.

	**Fan**	Write out placarded description of fan on map beside symbol. Must show if fan is operating or not.
	**Fan with Tubing**	Write out the conditions of the fan, tubing, vent bag or placard on the map by symbol.
	**Brattice Frames**	Indicate any information on placard on mine map beside symbol.
	**Brattice Cloth or Brattice Material**	Indicate any information on placard on mine map beside symbol.
CA	**Clear Air**	Clear Air (refer to definition in Glossary of Terms).
	**Gas Mixture**	Use for any placard indicating a gas or a mix of gases in the mine atmosphere. Write out the gas name or symbol and indicate PPM or percent (%) if shown on placard.
	**Smoke**	Write out placarded description of smoke (light, heavy, dense, etc.) on map beside symbol.
	**Track**	Show extent of track and location in mine entry or drift.

	**Mobile Equipment**	Use for all mobile mining equipment.
50	**50 Foot or First Team Check Inby Fresh Air Base**	Used for 50 foot check of team members
20	**20 Minute Apparatus Check**	Used for every 20-minute apparatus check of team members.
FPA	**Farthest Point of Advance**	Should be used only where areas inby will not be explored for whatever reason. Not to be used where other conditions block travel.
DI	**Captain's Date and Initial**	Use for all locations where the team captain dated and wrote his/her initials.
PC	**Power Center**	Write out placarded description of power center on map beside symbol. Must show if power center is energized or not.
X	**Other Objects, Conditions, or Equipment**	Write the name of the object, condition (includes person as well until made), or equipment and any other placarded information on map beside symbol. This would include a "face" if marked by placard or the location of roof supports (timbers, posts, jacks, etc.)

	**Roof support set by team**	○ support set by team – x is timber found by team.

Visit the Department of Labor website at
www.dol.gov