

## Pg. 9 - Change:

### **Team Members**

Each team shall be composed of five members, one fresh air base attendant and one assistant (optional). Each member shall wear a number on the arm at or near the shoulders with number one (1) being assigned to the captain, the number six (6) to the fresh air base attendant and seven (7) to the assistant. 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, may assist the team placing equipment prior to starting the clock. Only the fresh air base attendant and the assistant will be allowed to assist the team after the clock has started. **The fresh air base attendant and assistant 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, hard wire, communications system. The assistant may listen in with a separate headset and advise the fresh air base attendant and interact with the team only when they are at the fresh air base, however, the assistant cannot substitute for anyone.**

## Pg. 19 - Change:

### **Standard Communications and Signals**

A portable communication system, utilizing hard wire, 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.

## Pg. 23 - Change:

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 becomes 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.

## Pgs. 26-27 - Changes:

### **Gas Field Testing**

Gas testing proficiency will be conducted during the working of the mine rescue field competition. At one or more strategic locations on the field, a gas box (gas cylinder and tubing) containing an "unknown" mixture of gases will be found by the exploring team. Each mine rescue team will need to **provide their own calibration cups for their multi-gas instruments** and will be expected to report all required concentrations within acceptable limits: O<sub>2</sub>, CH<sub>4</sub>, CO, and NO<sub>2</sub>.

This segment of the contest will be scored by the judging officials as follows: at each gas box, there will be fifteen (15) discount points deducted per gas if the team does not report the respective gas concentration within the acceptable limits below:

- a. Oxygen readings are considered to be correct if within plus or minus 1.0% by volume;
- b. Methane readings are considered to be correct if within plus or minus 0.2% by volume (LEL readings are not acceptable);
- c. Carbon Monoxide readings are considered to be correct if within plus or minus 20% of the actual value present; and
- d. Nitrogen Dioxide readings are considered to be correct if within plus or minus 5 ppm of the actual value present.

### **Pgs. 49-50 - Change:**

7. At the simulated mine rescue station, the technician team will be provided with at least one breathing apparatus and at least one multi-gas instrument (designated by each team at the time of registration), equipment, tools, and supplies, as necessary to complete the problem. Only those tools, equipment, and supplies provided will be used by contestants to work the problem. **It is imperative that each team provide the type and model of breathing apparatus and the type and model of multi-gas instrument that the team will be using during the field competition because the same type and model of breathing apparatuses and multi-gas instruments will be made available to the Technician Team at the "simulated mine rescue station" during the Technician Team competition.**

### **Pgs. 51-52 - Changes:**

2. The written test will be given while the contestants are in isolation and will consist of thirty (30) multiple choice and true/false questions. The questions will be taken from:
  - a. MSHA Publication 3027 (formerly "IG 6 – Instructor's Manual for Mine Rescue Training"): Module 2 – Mine Gases and Module 3 – Ventilation.
  - b. MSHA National Mine Rescue Contest Rules
  - c. Respective instrument and apparatus manufacturers' service or operations manuals, **handbooks**, and videos.

**Each written test will include ten (10) questions concerning the breathing apparatus and (10) questions concerning the multi-gas instrument used by the Technician Team's mine rescue team, as declared on the contest registration form. The test questions will be taken from the manufacturer's current published information for each unit.**

Contestants will be assessed one (1) discount point for each incorrect or unanswered question. Any alterations to the test questions or answers will be determined to be incorrect by the test judge and discounts assessed.

### **Pg. 53 - Change:**

3. The technician team must also check the available mine rescue equipment and supplies, such as lifeline, scaling bars, stretchers, hammers, blankets, first aid supplies, fire extinguishers, etc., to ensure that they are adequate to meet the requirements of the problem and that they are in functional condition. Fire extinguishers need not be activated and stretchers do not have to be subjected to a weight-bearing test — visual inspections will suffice. If horns are to be used for signaling between team members, they should be checked. For contest purposes, a one-minute seal check simulating 10 minutes will be sufficient for the pump-type multi-gas detector. **The Technician Team will be allowed to bring a copy of the list of "suggested first aid supplies" when it is their turn to work the problem.**

## Pg. 57 – Changes:

1. The technician team must be familiar with the respective multi-gas instrument manufacturer's operations manual, **handbook**, and/or video.
2. For the purposes of the 2012 National Metal and Nonmetal Mine Rescue Contest, multi-gas instruments used by the teams (designated by each team at the time of registration) do not necessarily need to meet the requirements of 30 CFR 49.16(a)(6). That is, the multi-gas instruments used by the teams during the 2010 National Metal and Nonmetal Mine Rescue Contest will be allowable for use in each phase of the 2012 competition, including the Field and Team Technician competitions.
3. The multi-gas instrument given to the technician team may have multiple bugs or problems consisting of any of the following:
  - a. Missing and/or needed sensors
  - b. Failed sensors
  - c. Mis-calibrated sensors
  - d. Dead or incorrect batteries
  - e. Incorrect alarm and calibration points
  - f. Missing parts
4. The technician team will be expected to evaluate the instrument(s), repair all of the deficiencies, properly calibrate or **functional (bump)** test the instrument(s), and check for proper action level alarm set points. Dependent on the scenario provided, the technician team may be required to reconfigure the instrument(s) to measure appropriate gases, properly calibrate the instrument(s), and check/set proper action level alarm set points. Proper action level alarm set points and configuration settings for these gases will be provided by the judges.

## Pg. 60 - Changes:

11. Sucking or blowing on valves with one's mouth while making checks is prohibited. There will be a ten (10) point discount assessed for each infraction.
12. For completion, the self-contained breathing apparatuses must be assembled with hoses connected to the face piece and attached to the apparatus. The spare apparatus must be secured to the stretcher within the allotted time. If the team technician does not leave the apparatuses in this "ready-for-use" condition, a five (5) point discount will be assessed. **This rule addressing "ready for use" criteria is self-explanatory and specific. Contestants must ensure that all apparatuses found at the "simulated mine rescue stations" are left in this condition before the forty (40) minute time limit expires. Any deviation or omission will result in a five (5) point discount.**
13. All breathing apparatuses at the "simulated mine rescue station" must be examined in order to determine when they received their last monthly checks. Those units which have documentation (e.g., on a tag, on a piece of paper, or in a log book) showing the monthly checks were conducted within the past 30 days must still undergo a "high pressure leak test."

## Change - Add New Page (after Current Page 65):

### **PROCEDURES FOR "HIGH PRESSURE LEAK TEST"**

#### **For the Draeger BG-4 with Monitron (CCr/OCr Test):**

- a. The oxygen cylinder must be full, i.e. the charging pressure must be greater than 2600 psi/165 bar.
- b. Open the oxygen cylinder valve. **CCr (Close Cylinder)** will appear on the display unit approximately 3 seconds after opening the cylinder valve and successful completion of the battery test.
- c. As soon as the display disappears: close the cylinder valve.
- d. After approximately 35 seconds if the apparatus is O.K.:
  - i. Alarm sounds once
  - ii. Green indicator flashes

- iii. **OCr (Open Cylinder)** is displayed, i.e. open cylinder valve.
- e. The high-pressure leak test has been completed successfully.
  - i. Keep cylinder valve closed
  - The “automatic battery test” is performed, before switching off.
- f. Afterward, attach the face piece to the hoses and the unit is now in a “ready to use” condition.

**For the Draeger BG-4 with Sentinel:**

- a. The oxygen cylinder must be charged to at least 2600 psi, otherwise the Sentinel will not carry out the test.
- b. Open the oxygen cylinder valve. The icon “Close cylinder valve” appears on the display, the backlight is on, and a double alarm beep sounds when the pressure is greater than 2600 psi/165 bar.
- c. Close the cylinder valve.
- d. After 15 seconds when the BG-4 is O.K.:
  - The icon “Open cylinder valve” appears on the display, the backlight is on, and the countdown process of the bar graph continues.
  - The high pressure leak test has been passed successfully.
- e. Keep the cylinder valve closed.
  - Remove the sealing cap. Wait until the Sentinel shows 0 psi/0bar pressure.
- f. Replace the sealing cap on the plug-in coupling.
- g. Switching off the Sentinel
  - i. Simultaneously press the right and the left hand button until a sharp audible “bleep” sounds.
  - ii. Release buttons.
  - iii. For 3 seconds the Sentinel shows the battery status.
  - iv. Sentinel switches off.
- h. Afterward, attach the face piece to the hoses and the unit is now in a “ready to use” condition.

**Change - Add New Page (after Current Page 76):**

**PROCEDURES FOR “HIGH PRESSURE LEAK TEST”**

**For the BioPak 240 R:**

- a. Hold the pneumatic gauge in one hand and turn the unit by opening the oxygen cylinder. Verify that the pressure gauge reads between 2700 and 3000 psi.
- b. Observe gauge and TRIM light sequence, listen for Horn. When the 240 R RMS finishes its battery test and horn test and then flashes green, the contestant may then turn off the oxygen cylinder and bleed the unit by depressing the bypass. This takes approximately 50-60 seconds to do this test due to the gauge line flow restrictor.
- c. A successful test is one in which: 1) Oxygen does not leak out of the regulator; 2) Gauge goes to flow; 3) Proper RMS light sequence which ends up with a green light; and 4) Horn goes on and off.
- d. Bleed the unit properly by depressing the bypass.
- e. Afterward, attach the face piece to the hoses and the unit is now in a “ready to use” condition.

**For the BioPak 240S:**

- a. Hold the pressure gauge in one hand and turn on the unit by opening the oxygen cylinder. Verify that the pressure gauge reads between 2700 and 3000 psi.
- b. Observe gauge and listen for whistle. When the gauge reaches full (it takes a BioPak 240S gauge to reach full in 50-60 seconds due to the gauge in flow restrictor) and the contestant hears the whistle, he/she is then OK to turn off the oxygen cylinder and bleed the unit by properly depressing the bypass.
- c. A successful test is one in which: 1) Oxygen does not leak out of the regulator when the cylinder is opened; 2) Gauge goes to full; and 3) Whistle goes on and off.
- d. Bleed the unit properly by depressing the bypass.
- e. Afterward, attach the face piece to the hoses and the unit is now in a “ready to use” condition.

**Pg. 97 – Change (add new Definition):**

**BULKHEAD** - A wall or partition constructed across a passageway to direct the ventilating air in its proper course.

**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.

**Changes made 6-27-11 to reflect the following:**

**...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.**

1. "Warning" added to GENERAL RULES FOR CONDUCTING CONTEST – new Rule #14 (current page #4).
2. "Warning" added to NATIONAL MINE RESCUE CONTEST (FIELD COMPETITION) – new Rule #5 (current page #7).
3. 100 point discount added to Judge #2 Surface Scorecard – new Rule #7 (current page #37).
4. "Warning" added to TECHNICIAN TEAM CONTEST – new GENERAL RULE #11 (current page #50).
5. 100 point discount added to TEAM EQUIPMENT CHECKS/PREPARATION scorecard – new Rule #6 (current page #55).
6. "Warning" added to FIRST AID COMPETITION – new General Rule #6 (current page #80).
7. 100 point discount added to Station No.2 scorecard – new Summary Rule #3 (current page #95).