**6th ANNUAL**

**OHIO MINE SAFETY DAY COMPETITION**

**MERD & BENCH CONTEST**

**JERRY L. STEWART MINE TRAINING CENTER**

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**Director**

**Ohio Department of Natural Resources**

**LANNY E ERDOS**

**Chief**

**ODNR – Division of Mineral Resources Management**

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**2013**

1.

**Statement for the Team**

**You are located in the fresh air base that was established by previous mine rescue teams that have explored the mine to this point.**

**The maps that you will receive are not up to date.**

**The mine fan is running and in exhausting mode, it cannot be stopped, or reversed for any reason for the safety of the men underground.**

**There is a competent person monitoring the operation of the fan and taking gas samples.**

**There are three men missing in the mine that we want you located and bring all survivors to the surface.**

**A mine rescue team is on site to serve as your back up while you are exploring underground.**

**You must establish communications with the command center after starting the clock and before taking the team inby the fresh air base. You will receive instructions from the command center to explore the mine from a relay from your briefing officer.**

**All communications must go from the team to the briefing officer then to the command center from the briefing officer. The command center will send communications back to the briefing officer who will relay them to the team. Please comply with the instructions given by the command center to the team.**

**There will be a gas box located in the fresh air and the team is expected to identify the gas that is in the gas box before turning off their gas detectors and leaving the fresh air base to explore inby.**

**A time limit of 45 minutes will be set to explore this problem and you will be given a notification when you are at the 40 minute mark.**

**Good Luck**

2.

**Teams will be instructed to use R/A airlock instead of ventilating the irrespirable away by the command center**

**XXXXXXXX**

**XXXXXXXXX**

**Caved Airtight**

**Instruct teams that when they try to extinguish the fire on the scoop with a fire extinguisher that the fire is not out**

**Caved Airtight**

**Live Unconscious Man**

**XXXXXXXX**

**Scoop on Fire**

**Door Closed**

**RA**

**X**

**X**

**D**

**D**

**X**

**X**

**Door Open**

**Fire Nozzle Turned Off**

**Purge Valve Closed**

**Unsafe Roof**

**4% Methane**

**250 ppm CO**

**18% Oxygen**

**Pipe undercast open to travel under with wing walls**

**Live unconscious**

**Unsafe Roof**

**Start of smoke**

**Temporary Stopping**

**Start of Smoke**

**BC**

**B/O and Clock**

**4” shut off valve in off position**

**X**

**X**

**Energized 4” fresh water line**

**XXXXXXXX**

**Teams will need to ask the briefing officer to energize the fire hose by opening the fresh water 4” shut off valve. The command center should instruct teams to open the valve**

**Caved airtight**

3.

**XXXXXXXX**

**XXXXXXXXX**

**Caved Airtight**

**Live Unconscious Man**

**Caved Airtight**

**XXXXXXXX**

**Scoop on Fire**

**Door Closed**

**X**

**RA**

**5**

**4**

**X**

**D**

**D**

**X**

**X**

**Door Open**

**Fire Nozzle Turned Off**

**Purge Valve Closed**

**Unsafe Roof**

**4% Methane**

**250 ppm CO**

**18% Oxygen**

**Pipe undercast open to travel under with wing walls**

**Live unconscious**

**2**

**3**

**Unsafe Roof**

**Start of smoke**

**Temporary Stopping**

**1**

**Start of Smoke**

**BC**

**B/O and Clock**

**4” shut off valve in off position**

**X**

**X**

**Energized 4” fresh water line**

**XXXXXXXX**

**Caved airtight**

4.

**Teams will be instructed to use R/A airlock instead of ventilating the irrespirable away**

**XXXXXXXX**

**XXXXXXXXX**

**Caved Airtight**

**GT,DI,R&R**

**GT,DI,R&R**

**Instruct teams that when they try to extinguish the fire on the scoop with a fire extinguisher that the fire is not out**

**Live Unconscious Man**

**DI,R&R**

**XXXXXXXX**

**X**

**Caved Airtight**

**Scoop on Fire**

**Door Closed**

**X**

**GT**

**GT,DI**

**RA**

**X**

**DI**

**GT,DI,R&R**

**GT**

**D**

**D**

**DI**

**X**

**X**

**GT,DI,R&R**

**Door Open**

**Fire Nozzle Turned Off**

**Purge Valve Closed**

**Unsafe Roof**

**4% Methane**

**250 ppm CO**

**18% Oxygen**

**Pipe undercast open to travel under with wing walls**

**GT**

**Live unconscious**

**DI**

**GT,DI,**

**GT,DI,**

**GT,DI,R&R**

**GT**

**Unsafe Roof**

**GT**

**Start of smoke**

**Temporary Stopping**

**GT,DI,R&R**

**GT,DI,R&R**

**GT,DI**

**Start of Smoke**

**BC**

**B/O and Clock**

**4” shut off valve in off position**

**X**

**X**

**Energized 4” fresh water line**

**XXXXXXXX**

**Teams will need to ask the briefing officer to energize the fire hose by opening the fresh water 4” shut off valve.**

**Caved airtight**

5.

**Step by Step Guidance for Judges**

**Under the Fresh Air Procedures of the NMR Rules when the team arrives at the Fresh Air Base the judge will identify himself to the captain and the briefing officer then start a four minute countdown clock. At the three minute mark the captain will be informed that he has 1 minute left to start the clock. After the four minutes is concluded if the captain has failed to start the timing devise the judge will start it for him and the team should be discounted under Rule 50.**

**At the fresh air base during the four minutes the team may position their equipment and make ready for starting the clock however no work may be done prior to the clock being started. The captain is required to date and initial the check in board at the fresh air base under Rule 26 and this must be done after the clock has been started, but before the entire team goes inby the fresh air base. All entrances must be examined and gas test made in them under Rule 24 C before the entire team goes inby the fresh air base. The temporary stopping located in #1 entry will require a gas test under Rule 24 and the captain’s date and initial under Rule 27. Once the team has completed all functions required for fresh air base procedures under Rule 14 such as the examining of instruments, the establishing of communications, and going under oxygen. The entire team may enter the mine and is required a 50 foot. Apparatus check under Rule 28.**

**At Team Stop # 1 located at the temporary stopping located in # 1 entry the team will be required a 50 foot pack check under rule 28. Here the team will need to build an airlock to go inby into the mine under Rule 43. The captain will need to test the roof and rib prior to building the airlock under Rule 23 and date and initial the temporary that he built under Rule 27. A gas test will be required to be made by the captain after the inby temporary stopping is breached under Rule 24. The captain will see smoke after breeching the temporary and the #5 man will need to tie off with a life line in an area clear of smoke prior to the team advancing into the smoke under Rule 20 and 22.**

**At Team stop # 2 the team will need to remain on the link line since they are in smoke under Rule 22. They will need to take gas test in all opening to the intersection under Rule 24 and at the undercast wall. Since smoke continues to the undercast wall and there is no end of smoke placard, even if the team takes a gas test at the wall it will not clear the smoke under Rule 24 E.**

**At Team stop # 3 this will put the team inside of the undercast where the undercast walls require a gas test be made under Rule 24 and the walls require a date and initial under**

**6.**

**Rule 27. The opening of the undercast toward # 3 entry will require a gas test at the wall of the undercast on the # 3 entry side this will require a gas test be made. Depending on where the captain stopped he may be able to reach the unconscious man located here, remember the team is still hooked up to the link line due to being in smoke. If the team cannot reach the unconscious man they will need to advance to him. Once at the unconscious man the captain will need to stop and make physical contact by touch and date and initial him under Rule 27 and 32. Since the person is unconscious an assessment under Rule 12 must be completed and a carevent must be place properly on him under Rule 34 since he is in smoke and Rule 35 paragraph 5 he must be properly placed on a stretcher to be removed from the mine. If it can be done without an addition team move the captain may test the unsafe roof at this location under Rule 23 and date and initial it under Rule 27. If it cannot be reached without a team move the captain may need to return to this area to do this so it will not delay getting the patient out under Rule 42.**

**Team Stop 4 will be in the last intersection in # 1 entry gas test will need completed in all opening to the intersection and the team is still on link line. The caved airtight area in # 1 entry will need to have a roof and rib test made and a date and initial made.**

**Team Stop 5 will be in the last intersection in # 2 entry where the team will find a body first which will require a captain’s touch and date and initial in the intersection the captain will find a fire which will require a roof and rib test, a gas test and extinguishing the fire along with a date and initial. Note to Judges instruct the team that the fire is not out once they have used their fire extinguisher. The Command Center should instruct them to use the fire hose located there by requesting water be turned on at the fresh air base. Once this is done allow the fire to be extinguished. Once the fire is out the team again is still on link line in smoke so they will need gas test in all openings of the intersection. Roof and rib test need made at the unsafe roof outby in # 2 entry and date and initial there also inby the intersection a roof and rib test need made there along with date and initial. In the crosscut toward # 3 the team will encounter an R/A since the team does not get a response they can after taking a gas test at the door and dating and initial the door under Rule 35 and 27. May extend around the R/A toward # 3 entry where they will find caved airtight. There is no way to ventilate the smoke from the R/A since there is no response from inside the R/A then not everyone has been accounted for. So the team should be instructed to use the purge valve in the airlock to gain entry inside the R/A from the command center, and once inside complete an assessment of the patient then put a carevent on him. Note to Judges due to limited space inside of the R/A have the patient walk out so he can be placed on a stretcher to be removed from the mine.**

**7.**

**Once all persons have been accounted for and all live persons recovered the team may clock out.**

**Note to the Judge at 40 minutes into the problem let the team know that they have 5 minutes left to complete the problem by informing them that the guard at the fan has detected 5% CH4 19.5% O2 and smoke coming out of the fan and they have five minutes to exit the mine.**

**Instructions given to the team from the command center through the fresh airbase should be followed as long as it does not endanger the team or patient. This should be considered by the field judges when evaluating the team in the working of the problem.**

**Remember this is a MERD and is meant as a training exercise.**