

The following are examples of performance checklists (scoresheets) with merit/penalty values (scoring points). This document is being provided to the teams in advance of the 2022 IMRC for training purposes. These rule interpretations were agreed upon by Simulation Lead Judges and Simulation Judges in advance of the event.

These provided interpretations of the rules and scoring examples are for Section 3, Underground Mine Rescue Scenario/Simulation.

Not all scoring examples provided in this document will be used in the 2022 IMRC problem design.

### **Scoring:**

The Underground Simulation will be judged using a merit system with “0” being assigned to a task that is not done, skipped, not part of the problem, or the team ran out of time before completing the task. Merits will range between 0-3 depending on the difficulty of the task.

Scoring of each task will be done by more than one Simulation Judge independently. Following the team moving to the next task, Simulation Judges will create a consensus score based on their observations. Where no specific mandatory procedure or guideline for a task is provided in advance of the event, teams are encouraged to use the most safe and effective procedure known to them to complete the challenge. Simulation Judges will reward or penalize teams based on the relative safety and effectiveness of each task.

In the event of a scored tie in the Underground Mine Rescue Scenario, the team with the faster completion time (working time) for Underground Mine Rescue Scenario will break a tie.

Team Name: \_\_\_\_\_:  
Team number: \_\_\_\_\_:  
Judges: \_\_\_\_\_:

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**Rule 1:** It's the responsibility of each team member to have at minimum the following personal protective equipment (PPE) as outlined in the "rules governing the 2020 IMRC".  
(Section 1 pg.8 and Section 3, pg.19)

**(Protective headwear with Reflective silver stripe; Protective eyewear; High visibility safety apparel; Gloves; Protective footwear).**

- \_\_\_\_:0=not done                      Comments: \_\_\_\_\_:
- \_\_\_\_:1=poor attempt                      \_\_\_\_\_:
- \_\_\_\_:2=needs improvement                      \_\_\_\_\_:
- \_\_\_\_:3=excellent meets all requirements                      \_\_\_\_\_:

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**Time Keeping**

Team clock (working time) at completion of problem: \_\_\_\_\_ minutes/\_\_\_\_\_ seconds

Timekeeper's watch time at completion of problem: \_\_\_\_\_ minutes/\_\_\_\_\_ seconds

Was there a team clock failure or problem? \_\_\_\_\_: YES                      \_\_\_\_\_: NO

If answer is "yes" remarks: \_\_\_\_\_:

**A proper apparatus examination will include a visual examination of the gauge, facepiece, hoses, and determine by sight or feel, that the protective cover is secure. (Section 3 pg.23)**

Initial apparatus test completion time: \_\_\_\_\_ minutes/\_\_\_\_\_ seconds

**After initial apparatus examination is completed, each judge should record the time at the completion of the 20-minute apparatus check in his/her respective entry being traveled with each 2+2+2 group.**

1<sup>st</sup> 20-minute test completion time: \_\_\_\_\_ minutes/\_\_\_\_\_ seconds: Location of group: \_\_\_\_\_:

2<sup>nd</sup> 20-minute test completion time: \_\_\_\_\_ minutes/\_\_\_\_\_ seconds: Location of group: \_\_\_\_\_:

3<sup>rd</sup> 20-minute test completion time: \_\_\_\_\_ minutes/\_\_\_\_\_ seconds: Location of group: \_\_\_\_\_:

4<sup>th</sup> 20-minute test completion time: \_\_\_\_\_ minutes/\_\_\_\_\_ seconds: Location of group: \_\_\_\_\_:

5<sup>th</sup> 20-minute test completion time: \_\_\_\_\_ minutes/\_\_\_\_\_ seconds: Location of group: \_\_\_\_\_:

6<sup>th</sup> 20-minute test completion time: \_\_\_\_\_ minutes/\_\_\_\_\_ seconds: Location of group: \_\_\_\_\_:

7<sup>th</sup> 20-minute test completion time: \_\_\_\_\_ minutes/\_\_\_\_\_ seconds: Location of group: \_\_\_\_\_:

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**Rule 2:** The team can either go under oxygen at the Fresh Air Base before traveling into the mine, or the groups can explore until any group of 2,2 and 2 encounters an Immediately Dangerous to Life or Health (IDLH) atmosphere before donning. The apparatus with the lowest gauge reading must be reported to the Incident Commander/Briefing Officer or Assistant. (Section 3 pg.22)

- \_\_\_\_:0=not done                      Comments: \_\_\_\_\_:
- \_\_\_\_:1=poor attempt                      \_\_\_\_\_:
- \_\_\_\_:2=needs improvement                      \_\_\_\_\_:
- \_\_\_\_:3=excellent meets all requirements \_\_\_\_\_:

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**Rule 3:** After the initial apparatus checks is completed, the team or each group of 2,2, and 2 must examine their apparatuses at least every 20 minutes thereafter. The apparatus with the lowest gauge reading must be reported to the Incident Commander/Briefing Officer or Assistant. (Section 3 pgs.23, & 37)

- \_\_\_\_:0=not done                      Comments: \_\_\_\_\_:
- \_\_\_\_:1=poor attempt                      \_\_\_\_\_:
- \_\_\_\_:2=needs improvement                      \_\_\_\_\_:
- \_\_\_\_:3=excellent meets all requirements \_\_\_\_\_:

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**Rule 4:** Upon first entering an area of known respiratory contamination, an apparatus check is required by the team. The apparatus with the lowest gauge reading must be reported to the Incident Commander/Briefing Officer or Assistant. (Section 3 pg.35)

- \_\_\_\_:0=not done                      Comments: \_\_\_\_\_:
- \_\_\_\_:1=poor attempt                      \_\_\_\_\_:
- \_\_\_\_:2=needs improvement                      \_\_\_\_\_:
- \_\_\_\_:3=excellent meets all requirements \_\_\_\_\_:

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**Failures:** If a breathing apparatus operated by a mine rescue team fails for reasons out of the team control, (unrelated to misuse or incorrect operation), the time will be stopped by the judge with the team or in the event of being in 2+2+2, the judge with that group will stop his device, and relay this information to the other judges and the command center. The team will not be permitted to do any work during this time pause. The defective apparatus will be substituted with a functioning unit, and the clock will then be restarted. (Section 3 pg.19)

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**Rule 5:** The communication/radios used by the team must be visually checked by the team before going underground for safe operating condition and level of battery charge. (Section 3. pg.21)

- \_\_\_\_:0=not done                      Comments: \_\_\_\_\_:
- \_\_\_\_:1=poor attempt                      \_\_\_\_\_:
- \_\_\_\_:2=needs improvement                      \_\_\_\_\_:
- \_\_\_\_:3=excellent meets all requirements \_\_\_\_\_:

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**Rule 6:** The team or any group must report all immediately dangerous to life or health (IDLH) atmosphere they encountered to the Incident Commander (Briefing Officer) or assistant. (Section 3 pg. 23).

- \_\_\_\_:0=not done                      Comments: \_\_\_\_\_:
- \_\_\_\_:1=poor attempt                      \_\_\_\_\_:
- \_\_\_\_:2=needs improvement                      \_\_\_\_\_:
- \_\_\_\_:3=excellent meets all requirements \_\_\_\_\_:

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**Rule 7:** During initial exploration, team must check gas concentrations at openings to areas to be explored. The team must report the air quality (gas concentration) readings to the Incident Commander (Briefing Officer). (Section 3 pg. 35)

The team or groups must observe their detectors to verify gas readings.

- \_\_\_\_:0=not done                      Comments: \_\_\_\_\_:
- \_\_\_\_:1=poor attempt                      \_\_\_\_\_:
- \_\_\_\_:2=needs improvement                      \_\_\_\_\_:
- \_\_\_\_:3=excellent meets all requirements \_\_\_\_\_:

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**Rule 8:** During initial exploration, team or groups must check gas concentrations at all intersections they encountered. The team must report the air quality (gas concentration) readings to the Incident Commander (Briefing Officer). (Section 3 pg. 35)

The team, or groups must observe their detectors to verify gas readings.

- \_\_\_\_:0=not done                      Comments: \_\_\_\_\_:
- \_\_\_\_:1=poor attempt                      \_\_\_\_\_:
- \_\_\_\_:2=needs improvement                      \_\_\_\_\_:
- \_\_\_\_:3=excellent meets all requirements \_\_\_\_\_:

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**Rule 9:** The team or groups must check gas concentrations prior to energizing or de-energizing any equipment. The team must report the air quality (gas concentration) readings to the Incident Commander (Briefing Officer). (Section 3 pg. 35)

The team or groups must observe their detectors to verify gas readings.

- \_\_\_\_:0=not done                      Comments: \_\_\_\_\_:
  - \_\_\_\_:1=poor attempt                      \_\_\_\_\_:
  - \_\_\_\_:2=needs improvement                      \_\_\_\_\_:
  - \_\_\_\_:3=excellent meets all requirements \_\_\_\_\_:
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**Rule 10:** The team must check gas concentrations at the location of any live fire encountered, prior to extinguishing and after the fire is put out. Team must report the air quality (gas concentration) readings to the Incident Commander (Briefing Officer). (Section 3 pg. 35)

The team must observe their detectors to verify gas readings.

- \_\_\_\_:0=not done                      Comments: \_\_\_\_\_:
- \_\_\_\_:1=poor attempt                      \_\_\_\_\_:
- \_\_\_\_:2=needs improvement                      \_\_\_\_\_:
- \_\_\_\_:3=excellent meets all requirements                      \_\_\_\_\_:

**Rule 11:** The team or groups must check gas concentrations at the location of victim/casualties, inside rescue chambers, at shafts, at ramps leading up or down to other levels in the mine, in front of barricades seals, closes doors and other airtight structures and after breaching if conditions on the other side are not known, and first appearance of smoke.

Team must report the air quality (gas concentration) readings to the Incident Commander (Briefing Officer). (Section 3 pg. 35)

The team or groups must observe their detectors to verify gas readings at all required locations.

- \_\_\_\_:0=not done                      Comments: \_\_\_\_\_:
- \_\_\_\_:1=poor attempt                      \_\_\_\_\_:
- \_\_\_\_:2=needs improvement                      \_\_\_\_\_:
- \_\_\_\_:3=excellent meets all requirements                      \_\_\_\_\_:

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**Rule 12:** Proper sequence of gas checks inside a rescue chamber. 1<sup>st</sup>- Gas test in airlock, 2<sup>nd</sup> -gas test in airlock after purge, 3<sup>rd</sup>—gas test inside the inner door. (Section 3 pg.23)

Team must report the air quality (gas concentration) readings to the Incident Commander (Briefing Officer). (Section 3 pg. 35)

The team members inside the airlock must observe their detectors to verify gas readings.

- \_\_\_\_:0=not done                      Comments: \_\_\_\_\_:
- \_\_\_\_:1=poor attempt                      \_\_\_\_\_:
- \_\_\_\_:2=needs improvement                      \_\_\_\_\_:
- \_\_\_\_:3=excellent meets all requirements                      \_\_\_\_\_:

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**Rule 13:** Team must recheck gas concentrations in areas where ventilation changes have occurred. Team must report the air quality (gas concentration) readings to the Incident Commander (Briefing Officer). (Section 3 pg. 35)

Ventilation changes are considered to be any combination of stopping, starting or redirecting the airflow/current within the mine and regulating airflow to control a fire. (Section 3 pgs. 34 & 35)

The team must observe their detectors to verify gas readings have changed, and rechecks are only required at the following locations, (1) If team is underground during the change a recheck must occur at their location immediately after change is completed. (2) and in intersections along the team's travel route to enter or leave the mine immediately after the change has occurred.

- \_\_\_\_:0=not done                      Comments: \_\_\_\_\_:
- \_\_\_\_:1=poor attempt                      \_\_\_\_\_:
- \_\_\_\_:2=needs improvement                      \_\_\_\_\_:
- \_\_\_\_:3=excellent meets all requirements \_\_\_\_\_:

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**Rule 14:** The team may be required to block equipment from movement if encountered. (blocking/chocking of wheels or tracks must be done prior to passing the location of the equipment by any team member). (Section 3 pg.29 & pg.32)

Every effort must be made by the team in eliminating hazards the team has encountered. If the hazard cannot be safely eliminated it must be reported to the Incident Commander (Briefing Officer) or Assistant prior to proceeding past the hazard. (Section 3 pg. 29)

- \_\_\_\_:0=not done                      Comments: \_\_\_\_\_:
- \_\_\_\_:1=poor attempt                      \_\_\_\_\_:
- \_\_\_\_:2=needs improvement                      \_\_\_\_\_:
- \_\_\_\_:3=excellent meets all requirements \_\_\_\_\_:

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**Rule 15:** The team may be required to de-energize equipment if encountered. Turning off of lights on equipment would be considered de-energized. De-energizing must be done prior to passing the location of the energized equipment by any team member. (Section 3 pg.29 & pg. 32)

Every effort must be made by the team in eliminating hazards the team has encountered. If the hazard cannot be safely eliminated it must be reported to the Incident Commander (Briefing Officer) or Assistant prior to proceeding past the hazard. (Section 3 pg. 29)

- \_\_\_\_:0=not done                      Comments: \_\_\_\_\_:
  - \_\_\_\_:1=poor attempt                      \_\_\_\_\_:
  - \_\_\_\_:2=needs improvement                      \_\_\_\_\_:
  - \_\_\_\_:3=excellent meets all requirements \_\_\_\_\_:
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**Rule 16:** The team may be required to extinguish live fires. Fires must be extinguished, by the team prior to any team member passing the fire location in entry encountered. (Section 3 pg. 29 & pg. 32)  
Every effort must be made by the team in eliminating hazards the team is encountered. If the hazard cannot be safely eliminated it must be reported to the Incident Commander (Briefing Officer) or Assistant prior to proceeding past the hazard. (Section 3 pg. 29)

- \_\_\_\_:0=not done                      Comments: \_\_\_\_\_:
  - \_\_\_\_:1=poor attempt                      \_\_\_\_\_:
  - \_\_\_\_:2=needs improvement                      \_\_\_\_\_:
  - \_\_\_\_:3=excellent meets all requirements \_\_\_\_\_:
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**Rule 17:** If the team or groups enters an area of elevated ambient temperatures, a survey of climactic conditions must be taken. The reading must be reported to the Incident Commander (Briefing Officer) or Assistant to be recorded. (Section 3 pg. 36)

NOTE: Where possible during the Underground Simulation heat will be represented by an actual heated environment. If, during the Underground Simulation, the creation of an actual heated environment is not possible, the simulated conditions of "heat" will be indicated by displaying a symbol such as found on pg. 36 of the rules.

- \_\_\_\_:0=not done                      Comments: \_\_\_\_\_:
  - \_\_\_\_:1=poor attempt                      \_\_\_\_\_:
  - \_\_\_\_:2=needs improvement                      \_\_\_\_\_:
  - \_\_\_\_:3=excellent meets all requirements \_\_\_\_\_:
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**Rule 18:** If post/timber are available during working of the problem, the team may be required to set roof support in areas of unsafe roof/ground. (Section 3 pgs. 29, 30, 31 & 32)  
Setting of post is only necessary for recovery of persons or to explorer and area that may be affected by a ventilation change.

- \_\_\_\_:0=not done                      Comments: \_\_\_\_\_:
  - \_\_\_\_:1=poor attempt                      \_\_\_\_\_:
  - \_\_\_\_:2=needs improvement                      \_\_\_\_\_:
  - \_\_\_\_:3=excellent meets all requirements \_\_\_\_\_:
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**Rule 19:** If pumps are available during working of the problem, the team may be required to pump water if an area is impassable due to flooding. (Section 3 pg.32)  
Flooded areas only need to be pumped for the purpose of recovery of persons or to explorer and area that that may be affected by a ventilation change.

Impassable water-- is water ranging from over knee deep to roofed.

- \_\_\_\_:0=not done                      Comments: \_\_\_\_\_:
  - \_\_\_\_:1=poor attempt                      \_\_\_\_\_:
  - \_\_\_\_:2=needs improvement                      \_\_\_\_\_:
  - \_\_\_\_:3=excellent meets all requirements \_\_\_\_\_:
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**Rule 20:** The team may encounter an explosive concentration of gas. (Section 3 pg.32)  
Every effort must be made by the team in eliminating hazards the team has encountered. If the hazard cannot be safely eliminated it must be reported to the Incident Commander (Briefing Officer) or Assistant prior to proceeding past the hazard. (Section 3 pg. 29).

The following IDLH atmospheres listed in the 2020 rules may have the potential of reaching their explosive ranges in air. CO (Carbon Monoxide), H2S (Hydrogen Sulfide) CH4 (Methane).

- \_\_\_\_:0=not done                      Comments: \_\_\_\_\_:
- \_\_\_\_:1=poor attempt                      \_\_\_\_\_:
- \_\_\_\_:2=needs improvement                      \_\_\_\_\_:
- \_\_\_\_:3=excellent meets all requirements                      \_\_\_\_\_:

**Rule 21:** The team may encounter electrical hazards during working of the problem. (Section 3 pg. 32)  
Every effort must be made by the team in eliminating hazards the team has encountered. If the hazard cannot be safely eliminated it must be reported to the Incident Commander (Briefing Officer) or Assistant prior to proceeding past the hazard. (Section 3 pg. 29).

- \_\_\_\_:0=not done                      Comments: \_\_\_\_\_:
- \_\_\_\_:1=poor attempt                      \_\_\_\_\_:
- \_\_\_\_:2=needs improvement                      \_\_\_\_\_:
- \_\_\_\_:3=excellent meets all requirements                      \_\_\_\_\_:

**Rule 22:** A team member must **verbally indicate** (section 3 pg.24) he/she is checking for loose roof/ground at the location of a live fire prior to commencements of the fire extinguishing and after having it put out, and at each crossing of the fire location thereafter. (Section 3 pg.37)

- \_\_\_\_:0=not done                      Comments: \_\_\_\_\_:
- \_\_\_\_:1=poor attempt                      \_\_\_\_\_:
- \_\_\_\_:2=needs improvement                      \_\_\_\_\_:
- \_\_\_\_:3=excellent meets all requirements                      \_\_\_\_\_:

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**Rule 23:** Prior to erecting a stopping/airlock/dam (barricade), a team member must **verbally indicate** (section 3 pg.24) he/she is checking for loose roof/ground at the location of the team build. (Section 3 pg.37)

- \_\_\_\_:0=not done                      Comments: \_\_\_\_\_:
- \_\_\_\_:1=poor attempt                      \_\_\_\_\_:
- \_\_\_\_:2=needs improvement                      \_\_\_\_\_:
- \_\_\_\_:3=excellent meets all requirements                      \_\_\_\_\_:



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**Rule 24:** A team member must **verbally indicate** (section 3 pg.24) he/she is checking for loose roof/ground at locations of faces, at rock falls, and prior to erection of props to strengthen roof support of the workings. (Section 3 pg.37)

- \_\_\_\_:0=not done                      Comments: \_\_\_\_\_:
- \_\_\_\_:1=poor attempt                      \_\_\_\_\_:
- \_\_\_\_:2=needs improvement                      \_\_\_\_\_:
- \_\_\_\_:3=excellent meets all requirements \_\_\_\_\_:

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**Rule 25:** Teams traveling in 2, 2 and 2 must come together when fighting fires, when entering or removing persons from barricades or rescue chambers. The entire team must remain together when removing any persons from the mine. (Section 3 pgs.21 & 22)

- \_\_\_\_:0=not done                      Comments: \_\_\_\_\_:
- \_\_\_\_:1=poor attempt                      \_\_\_\_\_:
- \_\_\_\_:2=needs improvement                      \_\_\_\_\_:
- \_\_\_\_:3=excellent meets all requirements \_\_\_\_\_:

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**Rule 26:** Team must explore the areas of the mine that are smoke free in 2, 2 and 2 person groups. (Section 3 pg.21)

- \_\_\_\_:0=not done                      Comments: \_\_\_\_\_:
- \_\_\_\_:1=poor attempt                      \_\_\_\_\_:
- \_\_\_\_:2=needs improvement                      \_\_\_\_\_:
- \_\_\_\_:3=excellent meets all requirements \_\_\_\_\_:

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**Rule 27:** If fires are encountered and extinguished, the team must immediately return as groups of 2, 2 and 2 in their respective entries for further explorations. (Section 3 pg. 22).

- \_\_\_\_:0=not done                      Comments: \_\_\_\_\_:
- \_\_\_\_:1=poor attempt                      \_\_\_\_\_:
- \_\_\_\_:2=needs improvement                      \_\_\_\_\_:
- \_\_\_\_:3=excellent meets all requirements \_\_\_\_\_:

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**Rule 28:** Groups of 2, 2 and 2 must stay within one crosscut of an adjacent group when exploring. Each group must notify the Incident Commander that the groups have stopped or are advancing. (Section 3 pg. 21)

- \_\_\_\_:0=not done                      Comments: \_\_\_\_\_:
  - \_\_\_\_:1=poor attempt                      \_\_\_\_\_:
  - \_\_\_\_:2=needs improvement                      \_\_\_\_\_:
  - \_\_\_\_:3=excellent meets all requirements \_\_\_\_\_:
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**Rule 29:** If team is required to enter a rescue chamber the team must purge to clear an IDLH before opening the inner door. (Section 3 pg.23)

The team must observe gas detector after purging to see if gasses have changed inside the airlock.

- \_\_\_\_:0=not done                      Comments: \_\_\_\_\_:
- \_\_\_\_:1=poor attempt                      \_\_\_\_\_:
- \_\_\_\_:2=needs improvement                      \_\_\_\_\_:
- \_\_\_\_:3=excellent meets all requirements \_\_\_\_\_:

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**Rule 30:** If the team finds a rescue chamber the team must enter the chamber at the same team stop. (Section 3 pg.23)

- \_\_\_\_:0=not done                      Comments: \_\_\_\_\_:
- \_\_\_\_:1=poor attempt                      \_\_\_\_\_:
- \_\_\_\_:2=needs improvement                      \_\_\_\_\_:
- \_\_\_\_:3=excellent meets all requirements \_\_\_\_\_:

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**Rule 31:** if team has located a person or persons inside a rescue chamber/barricade/or other airtight structures, the team must properly protect the person or persons inside from outside (IDLH) atmospheres. This may be achieved by either ventilating to rescue or by providing a breathing device to rescue. **Note: Located means visual or verbal contact with a person.**

The team should make all efforts to remove persons from the mine if possible before exploring to other areas of the mine that has not previously been explored.

Only one breathing device (CAREvent) for rescue of a person will be allowed to be used during working of the problem, if this device is used it **cannot be used again** in rescuing of other victims. **NOTE: The team member reserve (backup) breathing apparatus cannot be used for rescue of casualties, victims or injured persons.**

- \_\_\_\_:0=not done                      Comments: \_\_\_\_\_:
- \_\_\_\_:1=poor attempt                      \_\_\_\_\_:
- \_\_\_\_:2=needs improvement                      \_\_\_\_\_:
- \_\_\_\_:3=excellent meets all requirements \_\_\_\_\_:

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**Rule 32:** The team must evacuate casualties, victims or injured persons to the fresh air base while utilizing the shortest route to the surface. (Section 3 pg.24)

In doing so the team must make every attempt to evacuate casualties, victims or injured persons to the fresh air base via already explored areas, but if these areas are proven infeasible the team may evacuate through unexplored workings. (Section 3 pg. 38)

- \_\_\_\_:0=not done                      Comments: \_\_\_\_\_:
  - \_\_\_\_:1=poor attempt                      \_\_\_\_\_:
  - \_\_\_\_:2=needs improvement                      \_\_\_\_\_:
  - \_\_\_\_:3=excellent meets all requirements \_\_\_\_\_:
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**Rule 33:** The team must ensure unexplored/inaccessible areas are not affected by a ventilation change. (Section 3 pg. 34)

This may require the team to build temporary stoppings or closing of doors.

Ventilation changes are considered to be any combination of stopping, starting or redirecting the airflow/current within the mine and regulating airflow to control a fire. (Section 3 pgs. 34 & 35)

Definition of unexplored: any area of the mine that the team has not investigated or mapped.

Definition of Inaccessible: All areas of the mine where team travel is blocked by one or more of the following conditions: unsafe roof rib to rib; inextinguishable fires; water over knee deep, and caved areas.

NOTE: If a team explores all sides of overcasts or undercasts, all ends of ventilation tubes and both ends of a shaft, (if they cannot be physically traveled, then the in-between areas would be considered explored for ventilation purposes).

- \_\_\_\_:0=not done                      Comments: \_\_\_\_\_:
- \_\_\_\_:1=poor attempt                      \_\_\_\_\_:
- \_\_\_\_:2=needs improvement                      \_\_\_\_\_:
- \_\_\_\_:3=excellent meets all requirements \_\_\_\_\_:

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**Rule 34:** During a ventilation change the team must come together and function as a 6-person team. (Section 3 pgs. 21 & 22)

Ventilation changes are considered to be any combination of stopping, starting, or redirecting the airflow/current within the mine, and regulating airflow to control a fire. (Section 3 pgs. 34 & 35)

This does not mean a group of 2 couldn't build a temporary, or close doors in their respective entry if needed before coming together with the entire team if these tasks didn't change any existing ventilation.

- \_\_\_\_:0=not done                      Comments: \_\_\_\_\_:
- \_\_\_\_:1=poor attempt                      \_\_\_\_\_:
- \_\_\_\_:2=needs improvement                      \_\_\_\_\_:
- \_\_\_\_:3=excellent meets all requirements \_\_\_\_\_:

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**Rule 35:** Prior to the team making a ventilation change, the team must receive permission from the control group (mine management authority) through a request from the Incident Commander/Briefing Officer. (Section 3 pg. 34)

Ventilation changes are considered to be any combination of stopping, starting, or redirecting the airflow/current within the mine, and regulating airflow to control a fire. (Section 3 pgs. 34 & 35)

- \_\_\_\_:0=not done                      Comments: \_\_\_\_\_:
- \_\_\_\_:1=poor attempt                      \_\_\_\_\_:
- \_\_\_\_:2=needs improvement                      \_\_\_\_\_:
- \_\_\_\_:3=excellent meets all requirements \_\_\_\_\_:

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**Rule 36:** If the team is required to build an airlock, they must make it reasonably airtight by clipping at least 8 of the 9 clips across the top and at least 3 of the 4 clips on each side of the temporary. (Section 3 pgs.34 & 35)

- \_\_\_\_:0=not done                      Comments: \_\_\_\_\_:
  - \_\_\_\_:1=poor attempt                      \_\_\_\_\_:
  - \_\_\_\_:2=needs improvement                      \_\_\_\_\_:
  - \_\_\_\_:3=excellent meets all requirements \_\_\_\_\_:
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**Rule 37:** If the team is required to breach an airtight separation such as: stoppings, doors, seals, barricades, or removing water roofed, and airlock must be formed by the team if conditions on the other side are unknown. (Section 3 pg.34)

NOTE: The airlock should be formed as close as practical to the condition being breached.

- \_\_\_\_:0=not done                      Comments: \_\_\_\_\_:
  - \_\_\_\_:1=poor attempt                      \_\_\_\_\_:
  - \_\_\_\_:2=needs improvement                      \_\_\_\_\_:
  - \_\_\_\_:3=excellent meets all requirements \_\_\_\_\_:
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**Rule 38:** If the team is required to enter smoke the lifeline used by the team must be attached/anchored off in clear air prior to team traveling into the smoke with all members holding firmly or attached to the lifeline. (Section 3 pg.22)

- \_\_\_\_:0=not done                      Comments: \_\_\_\_\_:
  - \_\_\_\_:1=poor attempt                      \_\_\_\_\_:
  - \_\_\_\_:2=needs improvement                      \_\_\_\_\_:
  - \_\_\_\_:3=excellent meets all requirements \_\_\_\_\_:
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**Rule 39:** The team will be assessed a 100-point discount if a team member intentionally disturbs or destroys any component on the competition field. The discounted points, if assessed, will be deducted from the earned points gathered during working of the mine field problem.

The sum of points gained by the team on the competition field. \_\_\_\_\_ - 100 = \_\_\_\_\_.

Comments if rule 39 is assessed to the team:

(Comments on where and why should be written below by the issuing judge or judges).

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## General rules and interpretations of Mine Map / Plans (Section 3 pg. 18)

- (1). One annotated Mine Map is to be created during the simulation by the Incident Commander (Briefing Officer) and will be scored according to the map legend created for the 2020 IMRC.
- (2). Only information related to the emergency must be noted on the mine map.
- (3). The following information must be marked on the map created by the Incident Commander (Briefing Officer) or Assistant **and Command Center Attendant, if used**
- (4). Location of gas and temperature measurements

**Note:** The results of the gas readings shall be placed on the map as followed:

\_\_\_\_\_ % CH4  
\_\_\_\_\_ PPM CO  
\_\_\_\_\_ % O2  
\_\_\_\_\_ PPM NO2

- (5). Location of missing persons (victims / casualties)
- (6). Location of hazards
- (7). All Reported "Low Gauge Readings" ---**Note:** these readings + the time can be on map or in notes
- (8). **All Immediately Dangerous to Life or Health (IDLH) atmosphere encountered by the team or group must be marked on the map prepared by the Incident Commander (Briefing Officer) or Assistant and Command Center Attendant, if used.**

**Immediately Dangerous to Life or Health (IDLH) atmosphere is defined as:**

The atmosphere contains, when tested:

Oxygen (O2) is below 17.0%.

Carbon Monoxide (CO) exceeds 1200 ppm (0.12%);

Hydrogen Sulfide (H2 S) exceeds 100 ppm (0.01%);

Nitrogen Dioxide (NO2) exceeds 20 ppm (0.002%)

Methane (CH 4) exceeds 5%

ANY smoke.

- (9). Incident Commander (Briefing Officer) **or Assistant and Command Center Attendant, if used** do not need to mark on maps / plans the location of stops and physical condition of rescuers; however, the time that these checks occurred must be noted on either the map or Incident Commander (Briefing Officer's) **or Assistant and Command Center Attendant, if used notes.**
- (10). Any infrastructure, including but not limited to compressed air, water, radio, ground support and ventilation that is functioning normally does not need to be specially noted on mine map /plans or notes.
- (11). Any infrastructure, including but not limited to compressed air, water, radio, ground support and ventilation that has been altered, disrupted or destroyed due to the emergency must be noted on the **mine map.**
- (12). The scenario may include working on more than 1 level and it may include boreholes, shafts, raises and slopes that could influence the ventilation system changes. Teams may be required to explore more than 1 level of the mine.

**Note:** Numbered paper tags (spads) will be hanging from the roof of the Simulated Mine in each **intersection** and will already be marked on the maps provided to the team. These spad numbers will aid the team in knowing their location in the mine, while aiding the fresh base personnel with mapping and note taking purposes. (Section 3 pg.17) **Note:** For the purpose of rule 8 gas checks at all intersections encountered and Rule 13 rechecks in intersections; An intersection is being defined by the location of each spad found in the mine or on the map given to the team. The required checks should be made by a team member as close as practical to the location of the spad to receive the most merit score for these required tasks.

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**Map rule 1:** The prepared map by the (incident commander/Briefing Officer must use proper map symbols that are shown in the 2020 IMRC rules. Mapping symbols used would be considered in correct location, as long as the symbol is in the correct entry, intersection or crosscut, as found in the mine. Photos are provided in the rules to aid the team in selecting the proper name for some of the equipment, objects, conditions, and devices.

- \_\_\_\_:0=not done                      Comments: \_\_\_\_\_:
- \_\_\_\_:1=poor attempt                      \_\_\_\_\_:
- \_\_\_\_:2=needs improvement                      \_\_\_\_\_:
- \_\_\_\_:3=excellent meets all requirements \_\_\_\_\_:

**Map rule 2:** The (incident commander/Briefing Officer) prepared map must record accurately/verbatim all gas concentration readings that will be required to be mapped, and other information required to be reported by the team.

- \_\_\_\_:0=not done                      Comments: \_\_\_\_\_:
- \_\_\_\_:1=poor attempt                      \_\_\_\_\_:
- \_\_\_\_:2=needs improvement                      \_\_\_\_\_:
- \_\_\_\_:3=excellent meets all requirements \_\_\_\_\_:

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**Map rule 3:** The (incident commander/Briefing Officer or assistant) must document each low gauge readings that was reported by the team during each required apparatus check. (This can be on map or in notes)

- \_\_\_\_:0=not done                      Comments: \_\_\_\_\_:
- \_\_\_\_:1=poor attempt                      \_\_\_\_\_:
- \_\_\_\_:2=needs improvement                      \_\_\_\_\_:
- \_\_\_\_:3=excellent meets all requirements \_\_\_\_\_:

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**Map rule 4:** The (incident commander/Briefing Officer or assistant) must record the time at the completion of each team apparatus test + the lowest gauge reading during each required apparatus test. (Initial test and each test there after until clock is stopped).

(This can be on map or in notes)

- \_\_\_\_:0=not done                      Comments: \_\_\_\_\_:
- \_\_\_\_:1=poor attempt                      \_\_\_\_\_:
- \_\_\_\_:2=needs improvement                      \_\_\_\_\_:
- \_\_\_\_:3=excellent meets all requirements \_\_\_\_\_:

**Map rule 5:** If the team is placing additional information on either map, the information cannot be existing symbols that are presently in the mapping legend, regardless of color coding used.

- \_\_\_\_:0=not done                      Comments: \_\_\_\_\_:
- \_\_\_\_:1=poor attempt                      \_\_\_\_\_:
- \_\_\_\_:2=needs improvement                      \_\_\_\_\_:
- \_\_\_\_:3=excellent meets all requirements \_\_\_\_\_:

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Teams shall have an **Incident Commander (Briefing Officer)** and **Assistant**. The team may elect to have a third person, **optional (Command Center Attendant)**. (Section 3 pg.20)

If the optional Command Center Attendant is used by the team, this would be for the purpose of electronic mapping using Microsoft Visio guidelines. If this option is used, the computer and program will be provided to the team in the designated command center location.

If the team has filled all three positions listed above, **(1) Incident Commander (Briefing Officer), (2) Assistant and (3) optional Command Center Attendant**, the map being marked by the optional attendant must be an electronic map using Visio.

For scoring purposes, the map given to the Incident Commander (Briefing Officer) and Assistant will be viewed for discounts. If discounts are found, then the optional attendant electronic map will be viewed in the area of the discounts and if correct on the electronic map, no discount will be accessed to the Incident Commander (Briefing Officer) map.

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**Map rule 6:** There will be no visually comparing of these maps during working of the problem by any team member located inside the designed command center/ FAB. (Section 3 pg. 20)

**NOTE:** Verbal communications concerning the maps is acceptable.

- \_\_\_\_:0=not done                      Comments: \_\_\_\_\_:
- \_\_\_\_:1=poor attempt                      \_\_\_\_\_:
- \_\_\_\_:2=needs improvement                      \_\_\_\_\_:
- \_\_\_\_:3=excellent meets all requirements                      \_\_\_\_\_:

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### **General Fresh Air Base Rules and interpretations. (Section 3 pg. 18)**

(1). The FAB will be situated in an assured supply of fresh air near the place of emergency. May be located on either surface or underground depending on the nature and location of the emergency.

(2). At the Fresh Air Base there will be **1 member** of the team, **Incident Commander (Briefing Officer)**, who will perform tasks (3) through (8) listed below:

**Note:** Assistant may aid the Incident Commander (Briefing Officer) in tasks (3), (5), (6), and (7).

**Note:** If Command Center Attendant is used, his or her duties are electronic mapping only.

(3). Interacting with specialists and leadership of the mine (Control Group).

(4). Communicating with the Mine Rescue Team.

(5). Annotating a provided paper map of the emergency area including all Mine Rescue Team findings.

(6). Keep a logbook/notes of emergency operation.

(7). Analyzing conditions in the place of emergency in order to prevent complications and ensure safety of team members.

(8). Interacting with reserve teams (if necessary).

(9). Incident Commander (Briefing Officer) **and Assistant and Command Center Attendant, if used** at the Fresh Air Base will not have visual contact with the Mine Rescue Team on the field.

(10). In the case of a performing Mine Rescue Team returning to the Fresh Air Base, the Incident Commander (Briefing Officer) **and Assistant and Command Center Attendant, if used** may either assist the Mine Rescue Team or stay at their communication station. When the team leaves the Fresh Air base the Incident Commander (Briefing Officer) **and Assistant and Command Center Attendant, if used** must return to their communication station.

(11). Incident Commanders (Briefing Officers) **and Assistant and Command Center Attendant, if used** stationed at the Fresh Air Base do not need to be equipped with their own respirators.

(12). The Incident Commander (Briefing Officer) **and Assistant and Command Center Attendant, if used** may **NOT** substitute with a Mine Rescue Team member once the team has begun the assignment. Accommodations may be made in the event of injury or illness as previously specified, though this is not guaranteed and remains at the discretion of the Chief Judge.

#### **Team Safety:**

- If the oxygen reserve in a breathing apparatus of any team member drops below 25% of the initial value, the team must report the situation to the Incident Commander (Briefing Officer) and determine the safest plan of action for returning to the Fresh Air Base.
- Rescuers must demonstrate a sense of urgency at all times but are not permitted to run while they travel through the mine simulation.



## Underground Scenario Scorekeeper Card

Team Name: \_\_\_\_\_:

Team working number: \_\_\_\_\_:

The teams working time: \_\_\_\_\_:

**NOTE:** In the event of a scored tie in the Underground Mine Rescue Scenario, the team with the faster completion time (working time) for Underground Mine Rescue Scenario will break a tie.

### Underground points.

(1). List the sum of points the team earned from the 38 scoring rules.  
\_\_\_\_\_points earned.

(2). If the team was discounted for rule 39 subtract 100 points from above points earned. \_\_\_\_\_points earned after deduction

### Mapping points.

(3). List the sum of points the team earned from the 6 map scoring rules. \_\_\_\_\_points earned.

### Total points earned

Add the points listed on line 1 with the points listed on line 3, if line 2 was left blank. \_\_\_\_\_ total points earned by the team.

SCOREKEEPING JUDGE COMMENTS: \_\_\_\_\_.

**NOTE:** The Chief Judge will have final oversight on the interpretation and scoring of the actions of the teams. The decision of the Chief Judge may supersede the evaluation of the Simulation Lead Judge and Simulation Judge for that competition task and will be recognized as the final ruling in the event of a disagreement regarding the scoring.

Competing teams **will not** be permitted to appeal the scoring or decisions of the Simulation Judges, Simulation Lead Judges or Chief Judge.

The Chief Judge and Simulation Lead Judges shall be the only people in contact with the Scorekeepers. (Section 2 pg.13)

CHIEF JUDGE COMMENTS: \_\_\_\_\_.

## Examples of Gas Testing And Mapping

