F I N A L D E B R I E F

IMRC

CANADA 2016

Sudbury, Ontario, Canada
August 19 - 26, 2016

Rules Governing IMRC 2016

Version 2.1

Every effort has been made to make this Version (V2.1) as complete and accurate as possible. It is advisable, however, to check the website (www.IMRC2016.ca) to ensure this is the most up to date version.

TABLE OF CONTENTS

Questions regarding these rules may be directed to rules@IMRC2016.ca

1.0 OVERALL

1.1 Mission Statement

The International Mines Rescue Competition (IMRC) is a biennial event. The purpose of the IMRC is to present realistic simulations that will allow organizers to:

1. Evaluate skills required to perform rescue operations in a mining environment.
2. Judge participants in an open and transparent manner.
3. Provide feedback to all participants.
4. Promote Mine Rescue through improved communication, co-operation and knowledge transfer between responders, mine operators, suppliers, regulators and educators.

1.2 Notice of Rules Revisions

The 2016 International Mine Rescue Competition Organizing Committee may be required to revise or update the rules found in this or other pre-competition documents. Registered competing teams will be given notice of any revisions or updates to this or other rules documents. The current, standing rules documents will remain posted on the IMRC 2016 website prior to the competition. All scheduled future publications will be listed within this document and on the IMRC 2016 website.

1.3 Roles and Responsibilities

1.4 Chief Judge

1.4.1 The Chief Judge is responsible for the drafting, preparation and execution of all aspects of the IMRC. All Simulation Lead Judges, volunteers and support personnel are under the direction of the Chief Judge or his designated alternate. All scoring sheets are to be submitted by the Simulation Lead Judge to the Chief Judge for final review and scorekeeping. Any scoring disagreements that cannot be resolved amongst the Simulation Judges in their area of responsibility shall be presented to the Chief Judge for final decision.

1.4.2 For the 2016 International Mine Rescue Competition (IMRC 2016), the role and responsibilities of Chief Judge shall be carried out by the General Manager of Ontario Mine Rescue.

1.5 Simulation Lead Judge

1.5.1 Reporting to the Chief Judge, the Simulation Lead Judge is responsible for coordinating all Simulation Judges in their area of responsibility, and assisting in the interpretation of the Rules Governing the IMRC 2016. The Simulation Lead Judge will guide each competing team through their area of responsibility and ensure understanding of the given scenario by the team and/or Technical Translator. The Simulation Lead Judge is also responsible for ensuring that the field layout of their area of responsibility is reset after each team has competed, so that it is identical for each team.

1.5.2 For IMRC 2016, the role and responsibilities of Simulation Lead Judge shall be carried out by the individuals appointed by the Chief Judge prior to the event.

1.6 Simulation Judge

1.6.1 Reporting to the Simulation Lead Judge for each competition task, the Simulation Judges will be responsible for observing the actions of competing teams and scoring each team according to pre-determined requirements. Simulation Judges must attend the official judges meeting prior to the competition, where they will be provided with information on their duties and scoring areas of the competition.

1.6.2 Simulation Judges will be selected and assigned by the Chief Judge from the list of qualified individuals that submit an Online Judge Application via the IMRC 2016 website before the listed deadline.

1.7 Scorekeepers

1.7.1 Scorekeepers will be responsible for collecting and compiling the official scoring documents completed by Simulation Judges for each competing team at each competition event or task. The Scorekeepers will be stationed in an area of seclusion and will be in contact with the Simulation Lead Judges and Chief Judge only.

1.7.2 For the IMRC 2016, the role and responsibilities of Scorekeepers shall be carried out by the individual(s) appointed by the Chief Judge.

1.8 Scribe

1.8.1 The Scribe will follow each competing team through each competition task and shall be responsible for transcribing time specific actions of each competing team in English. Annotation of team actions will be made from the beginning of each scenario until the Simulation Lead Judge calls the problem "complete". The notes compiled by the Scribe shall be used by Simulation Lead Judges as well as the Chief Judge to confirm the validity of competition scoring and eliminate judging errors.

1.8.2 For IMRC 2016, the role and responsibilities of Scribe shall be carried out by the individual appointed by the Chief Judge.

1.9 Competing Teams – Member Roles

1.9.1 **Incident Commander (Briefing Officer)**

1.9.1.1 The team Briefing Officer (Incident Commander) is ultimately responsible for oversight of teams while they work through simulated underground emergency tasks.

1.9.1.2 The actions of the team Briefing Officer as it relates to team competition events shall be judged and scored in conjunction with the team score.

1.9.2 **Captain**

1.9.2.1 The team Captain shall take charge of, and be responsible for, the discipline; general safety and work performed by his/her team; and should take orders only from the Briefing Officer.

1.9.2.2 The actions of the Captain as it relates to team competition events shall be judged and scored in conjunction with the team score.

1.9.3 **Team Member**

1.9.3.1 Each Team Member shall operate under the direction of the Captain at all times during all competition tasks.

1.9.3.2 The actions of the Team Members as it relates to team competition events shall be judged and scored in conjunction with the team score.

1.10 Technician

1.10.1.1 Competing Technicians will be responsible for diagnosing and repairing multiple pieces of emergency equipment during a separate Technician competition.

1.10.1.2 The Technician will not participate in any team task, exercise or event and will not contribute towards team scoring in any manner.

1.11 Technical Translator

1.11.1.1 For IMRC 2016, the role of the Technical Translator shall be carried out by an individual appointed in advance of arrival by the competing team. The Technical Translator will be responsible for following the team and converting both spoken language and written competition materials into the working language of the competing team. The goal of the Technical Translator role is to have the team hear the interpretation as if it were the original. Therefore, the Technical Translator must be an individual proficient in technical mining and emergency response terminology.

1.12 Honesty, Transparency and Integrity

1.13 Isolation

1.13.1 In the spirit of fairness and equality, teams taking part in the competition must not seek or share information in advance of participation pertaining to simulation events, exercises, tasks or test. Before the start of the contest all teams scheduled to participate in competition tasks on that day will be placed in isolation.

1.13.2 All members of the team including technical translators and other accompanying persons will also be isolated.

1.13.3 No other personnel will be allowed into the isolation area other than those approved by the Chief Judge.

1.13.4 The time and location of the isolation area will be announced prior to the competition date.

1.13.5 Teams in isolation will not be allowed to communicate with personnel outside of competition organizers by any means: visually, by means of phones, cells, radio, electronic devices, and social media. Posting news or information to social media or other online information sites (eg. Facebook, Twitter) prior to the completion of all competition field events is prohibited. In case of violation or intention to violate these rules, the team will be assigned negative (penalty points) and may be subject to disqualification.

1.13.6 Personnel who leave the isolation area will not be allowed to re-enter.

1.13.7 Teams that have completed competition field events are not permitted to communicate with any teams that have not yet completed the event.

1.13.8 Team members may take reference material into the isolation area. The team member may not use any of this reference material during competition tasks or while completing the theory exam. Contestants will not carry personal notebooks into the contest area.

1.13.9 Simulation Lead Judges, Simulation Judges and other competition officials are not allowed to be in contact with any competing team members, in particular to discuss issues related to the competition.

1.14 Competition Task Areas

1.14.1 A separate area will be provided for spectators to observe the teams during the competition. Only officially escorted spectators, photographers or news media will be permitted closer to the field exercise as approved by the Chief Judge.

1.14.2 All photographs of competition events and tasks will be taken by the designated event photographers. Photographs will be distributed to teams upon completion of the IMRC. Team photographers are permitted, however must stay within the assigned spectator's area.

1.14.3 All judges and officials shall be provided with a visible means of identification. No person except designated officials will be permitted to communicate with the teams performing or waiting their turn to do so.

1.14.4 Simulation Lead Judges, Simulation Judges or competition officials may not communicate with the competing team members or interfere with tasks unless a health & safety risk is identified.

1.14.5 Only Simulation Lead Judges, Simulation Judges or competition officials assigned to each particular competition task are allowed on the competition field for each specific event.

1.14.6 Following the field exercise, a brief Simulation Judges meeting will be held to ensure consistency between all of the Simulation Judges of that specific competition task or event.

1.14.7 Simulation Judges will complete their respective scorecards.

1.14.8 Simulation Judges will provide a written explanation of the merit and negative (penalty) points assigned.

1.14.9 After signing the scorecard, a Simulation Judge is not allowed to make any changes to it without consensus with the other Simulation Judges and the Chief Judge.

1.14.10 Simulation Lead Judges will collect the scorecards for their specific competition task or event and submit them to the Chief Judge.

1.14.11 Simulation Judges will judge in their assigned area only.

1.14.12 Simulation Judges must attend the official judges meeting prior to the competition. Following the official judges meeting, Simulation Judges are prohibited from communicating with members or affiliates of the competing teams.

1.15 Competition Review/Debrief

1.15.1 Debrief information sessions will be offered on the day following the awards ceremony. Debrief information sessions are for summary purposes only, not for the discussion of scoring or interpretation of actions. Following scoring of team actions by Simulation Judges there will be no appeal process.

1.16 Team Requirements

1.17 Fitness/Medical Suitability

1.17.1 All team members must have a medical assessment completed no more than 12 months prior to the competition. This assessment is to confirm a team member is physically fit, and capable of performing work while using breathing apparatus during Mine Rescue activities. This assessment is to be conducted and authorized by a medical professional.

1.17.2 Before the competition begins, medical professionals will confirm the fitness of each team member. No one will be permitted to participate in the team events without having been found physically fit by a medical professional. Personnel with severe colds or other ailments affecting normal breathing are not permitted to wear breathing apparatus upon direction of the medical professional.

1.17.3 All individuals participating in the competition must be self-insured in the event of an accident or illness. Each participant will take part in the competition at their own risk and responsibility.

1.18 Certificate of Qualifications

1.18.1 Each member of the team must be certified/qualified in Mine Rescue and recovery activities within their jurisdiction of work. In addition, team members must demonstrate the necessary physical and mental abilities to perform Mine Rescue work.

1.18.2 In jurisdictions where there is a certifying organization to regulate training, team members must present a certificate of training.

1.18.3 In jurisdictions where there is no certifying organization to regulate training, the Mine General Manager (MGM) or equivalent authority will provide a letter of qualification for the participating team members to confirm their proficiency.

1.19 Personal Protective Equipment

1.19.1 Competing teams must be properly dressed for emergency response simulation exercises with personal protective equipment including protective headwear, chin straps, protective eyewear, high visibility apparel, protective footwear and hand protection.

1.19.2 Competing teams must have personal protective equipment (PPE) that meets the requirements specified as follows.

1.19.3 Protective Headwear

Hard hats must have a fixture for a cap lamp and a chin strap. Reflective material for hard hats will be silver. Retro-reflective striping must be applied to the front, back and sides.

Hard hats must meet the requirements found in Ontario Regulation 854, Mines and Mining Plants and applicable test requirements for at least a Type 1 Class C approval – impact protective headwear that does not provide dielectric protection.

All hard hats must meet at least one of the following standards:

a) Canadian Standards Association standard CAN/CSA – Z94.1-05, Industrial Protective Headwear – Performance, Selection, Care and Use.
b) American National Standards Institute, standard ANSI – Z89.1-2003 Safety Requirement for Industrial Head Protection.
c) ANSI/ISEA (International Safety Equipment Association) – Z89.1-2009

Please note, all hard hats should be affixed with an attachment point for a cap lamp (miner's lamp). Any team unable to obtain such an attachment should notify IMRC 2016 organizers to discuss alternatives.

1.19.4 Protective Eyewear

Protective eyewear must be safety spectacles and have permanently affixed side shields. Protective eyewear must fit properly and manufacturer's recommendations for use must be followed. All eye protection must meet one of the following standards:

a) Canadian Standards Association, standard CAN/CSA – 07 Eye and Face Protectors.
b) American National Standards Institute, standard ANSI 03 and/or Z87.1-10.

1.19.5 High Visibility Safety Apparel

Safety apparel must be Class 3, Level 2 coveralls or pants and long sleeve shirt with the following features:

a) Be made of fluorescent background material
b) The apparel must have retro-reflective striping that measures 50 millimetres in width
c) The striping must entirely circle each arm and each leg just below the knee) as well as the waist (at or
d) The striping must be arranged in two vertical lines on front extending over the shoulders and down to the and be arranged in an X on the back portion covering upper body. the waist the
e) Team members must have their team number attached to the left arm at the shoulder (starting with team captain, #5 for the vice-captain, #6 for the spare finishing with #7 for the briefing officer) #1 for and
f) The apparel must be flame resistant and suitable for exposure to flash fires or short duration flame exposure.

All safety apparel must meet the following standards:

a) Ontario Regulations 854 Sections 262 (2), 263 (2) and 263 (3)
b) Canadian Standards Association standard CAN/CSA – Z96-09

1.19.6 Hand Protection

Gloves should provide protection from friction, cuts and punctures. Gloves must be suitable for a variety of tasks that may include rope work, firefighting and the use of a variety of hand tools in underground and surface environments. Different types of gloves may be used in each simulation.

1.19.7 Protective Footwear

Protective footwear must be rubber, leather or ballistic nylon. Rubber boots must have metatarsal protection, puncture resistant soles and meet CSA Grade 1 impact requirements. Leather or ballistic nylon boots must be omega rated, have puncture resistant and electric shock resistant soles, integral or external metatarsal protection and meet CSA Grade 1 impact requirements as shown below.

All safety footwear must meet the following standard:

a) Canadian Standards Association standard – CAN/CSA – Z195-09 Protective Footwear

1.19.8 Standard Personal Protective Equipment

The following items will be supplied during IMRC 2016 field tasks or events:

a) Cap Lamps
b) Mine Rescue travel restraint belt
c) Cap lamp battery pouch (if required)
d) Link line
e) Medical examination gloves

1.20 Team Equipment

1.20.1 Team Supplied**:**

a) PPE as per above

1.20.2 IMRC 2016 Supplied**:**

a) Miners belts
b) Link lines
c) Cap lamps (with pouch)
d) Medical examination gloves
e) All rescue equipment required for simulations

1.21 Official Language

1.21.1 The official language for all of the events and communications will be English. Every effort will be made during competition task planning to minimize any disadvantage to competing teams due to a lack of proficiency in English or the use of a Technical Translator.

1.22 Team Demographics

1.22.1 Team Member Requirement**s** – each candidate must be:

a) A minimum age of 18 years old
b) In good health and physically fit
c) Clean shaven, with no facial hair to interfere with the facemask seal
d) Calm and self-controlled in an emergency or a dangerous event
e) Known to be of good judgment and initiative
f) Capable of performing long, arduous and physical labour
g) Familiar with underground mining conditions and practice
h) Certified in first aid training
i) An employee of a mining company/government agency.

1.23 Competition - General Rules & Requirements

1.24 General Rules

1.24.1 There will be a predetermined allotment of time, prior to the day of scheduled competition events, for each team to review the equipment that may be used in the competition(s). This equipment review period will be assigned by competition organizers to coincide with the IMRC 2016 schedule of events.

1.24.2 The IMRC 2016 Overall Team Competition will consist of five available scored events. Each team must participate in four of the five available team events to be entered in the Overall Team Competition rankings. Three team events are mandatory with the fourth team event being a choice between one of two events. All of the team events will have a weighted scoring value contributing to the Overall Team Competition scoring as follows:

a) Team Underground Mine Rescue Simulation **(Mandatory)** - 40%
b) Team Firefighting **(Mandatory)** – 30%
c) Team Theory Exam **(Mandatory)** – 10%
d) Final Scoring Task – 20%
    1. (**Option 1**) Team First Aid
    2. (**Option 2**) Team High Angle Rope Rescue

1.24.3 Teams are encouraged to participate in all five events. Their fifth event will not count in the Overall Team Competition score, but will qualify for the awards associated with the individual event.

1.24.4 Teams electing not to participate in the Overall Team Competition are still eligible for the awards associated with the individual events in which they participate.

1.24.5 Each competing team will be comprised of seven team members:

1. One Incident Commander (Briefing Officer)
2. One Captain
3. One Vice Captain and
4. Four team members.

Upon following registration and prior to the commencement of competition tasks, teams must clearly define the seven individuals selected to compete and those individuals in a non-competing spare or reserve role.

1.24.6 Teams may also include a Technician to compete in the individual Technician Competition. All other people travelling with the team will be considered spectators and will be restricted from the competition designated task area. All spectators will be guided to the competition task viewing area.

1.24.7 Technical Translators, for the purpose of assisting teams during competition tasks, will not be provided by the IMRC 2016 organizing committee. Technical Translators are in addition to the seven competing team members outlined above. Technical Translator duties are to provide translation only. They may not assist with competition tasks or discuss team actions with competing team members.

1.24.8 Technical Translators will have equivalent access to the designated task areas as the competing team members.

1.25 Team Member Substitution

1.25.1 If a medical professional determines that a team member is medically unfit to participate in the event, a substitution will be allowed. The unfit team member will be allowed to switch positions with their spare team member. All substitutions must be approved by the Chief Judge prior to the team leaving isolation.

1.26 Penalties

1.26.1 Prior to commencement of each competition problem, a check based on direct observations shall be made to determine whether any of the team members are unfit to participate in the competition task. Where there are reasonable grounds to believe any physical or mental factor renders a team member unfit to compete, the Chief Judge will investigate. If the Chief Judge agrees, the team member will be disqualified and the team may face further penalty up to and including disqualification.

1.26.2 The Chief Judge will investigate when there are reasonable grounds to believe that a person has attempted to assist/influence a team by providing information related to any part of the competition, prior to or during a competition problem. If the Chief Judge deems that such a transgression has occurred, the team may face penalties up to and including disqualification.

1.26.3 The Chief Judge will investigate when there are reasonable grounds to believe a team or member received information concerning a competition problem. If the Chief Judge deems that such a transgression has occurred, the team may face penalties up to and including disqualification.

1.26.4 Information or pictures about the competition cannot be posted to digital communication channels or social media outlets until the awards ceremonies are complete. The Chief Judge will investigate if any team, team member or team representative is found to have posted competition information to digital channels or social media prior to such a time. If the Chief Judge deems that such a transgression has occurred, the team may face penalties up to and including disqualification.

1.26.5 The Chief Judge will investigate if any team, team member or team representative causes disruption during the competition. If the Chief Judge deems that such a transgression has occurred, the team may face penalties up to and including disqualification.

1.26.6 Any penalty applied will be decided by the Chief Judge. Teams will not be allowed to appeal the decision or penalties assessed. All decisions will be final.

1.27 Scoring

1.27.1 Examples of performance checklists (scoresheets) with merit/penalty values (scoring points) will be provided to registered teams in advance of IMRC 2016 for training purposes.

1.27.2 Interpretation and scoring in each competition event will be pre-determined by IMRC 2016 organizers and agreed upon by Simulation Lead Judges and Simulation Judges in advance of the event and at the judge's pre-competition meeting.

1.27.3 The Simulation Lead Judge and Simulation Judges for each competition event will discuss each competing team's performance and must reach consensus on the scoring of each task.

1.27.4 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.

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

1.27.6 The Chief Judge and Simulation Lead Judges shall be the only people in contact with the Scorekeepers.

1.28 Debriefing/Information Sessions

1.28.1 Competing teams and technicians will be provided with an opportunity for a debriefing information session on the day following completion of the competition awards ceremony.

1.28.2 The purpose of the debriefing information session is to provide feedback to all competing teams.

1.28.3 At the debriefing information session, competing teams will be provided with the following:

a) A scoresheet summarizing the scoring of all competing teams in all tasks
b) A copy of their own scoresheets including Simulation Judge written comments and Scribe notes
c) An opportunity to discuss their actions in the context of the intended competition task requirements.

1.29 Competition Task Specific Rules and Guidelines

1.30 General

1.30.1 Format Notes

- All emergency simulations will use live infrastructure including compressed air, water, ventilation, radio communication and ground support.
- All people encountered in underground workings are to be treated as part of the emergency scenario unless visually identified as a Judge
- Order of Competing Teams: Will be drawn by lottery prior to the date of the competition (date to be determined). Teams travelling from the same jurisdiction or country will be drawn together and complete each task following one another to prevent any potential for information sharing.
- The Chief Judge and Simulation Lead Judge with the assistance of a committee will develop and setup the simulation
- Once developed, the simulation will be sent for an external (Non-Canadian 3rd Party) technical expert review to ensure procedures are realistic
- Where possible any simulations underground that are present will be simulated by an actual means, such as smoke, gas readings, heat etc. When this is not possible, these will be indicated by a visual or symbolic means.
- Simulation victims will be made-up using casualty simulation visual effects to show any injuries

1.30.2 Illness/Injury

- Any Mine Rescue Team member (Competitor) that experiences unexpected illness or injury of any form during the competition scenario must immediately notify the nearest Simulation Judge who will then inform the Lead Simulation Judge.
- Simulation or assignment task “measured time” will be paused during the evaluation of any injuries or illnesses in fairness to the competing team.
- The Simulation Lead Judge will determine whether it is safe for the team member (competitor) to continue with the task, and therefore will also determine whether the Mine Rescue Team may proceed with the remainder of the task. It is the goal of both the IMRC Judges and competing teams to help every team achieve the goal of completing each task, however this will not be done at the expense of health or safety.

1.30.3 Equipment Orientation

- Location:

Lo-Ellen Park Secondary School, Gymnasium
275 Loachs Rd, Sudbury, ON P3E 2P8

- All teams will be allocated a 2-hour Equipment Orientation Session on either Sunday August 21st or Monday August 22nd
- All teams requiring an English translator must bring their Technical Mining Translator to the equipment orientation
- Where possible, teams will be grouped with other teams speaking the same native language to help utilize translators more effectively.

- Orientation sessions will demonstrate all equipment that may be used during the competition. Some equipment demonstrated may not be used, it is the responsibility of teams during each emergency to determine what is required.
- Demonstrations will include:
    - Inspection of equipment
    - Hazards of operating equipment
    - Proper operating procedure
    - Proper shutdown procedure
    - Competitors (Mine Rescue Team) hands-on time
    - Questions

2.0 UNDERGROUND MINE RESCUE SCENARIO/SIMULATION

2.1.1 Format

General

- The Underground Mine Rescue Scenario is mandatory for all teams participating in the 2016 IMRC Overall Team Competition.
- Task will be carried out in an inactive underground hard rock (base metal) mine
- Location:

Vale Mine 114 Orebody

(Coordinates: 46.489239, -81.066171 or 46°29'21.3"N 81°03'58.2"W)

- Mine Maps/Plans will be provided (electronic copies) to teams for reference no later than 1 month prior to the competition.
- Underground photos/video will be provided for simple visual familiarization purposes no later than 1 month prior to the competition.
- Site Surface Photos:


VALE
114 ORE BODY
MINE SITE


CCM 114 OB


IMRC
VALE


LOGISTICS DEPARTMENT

Field Setup

- In the workings of the underground mine (simulation field) it is important for teams to prepare for a very different experience than previous International Mine Rescue Competitions. Placards and judges will **NOT** be used to convey information about the condition of any of the below where possible. It is the intention of IMRC 2016 to allow teams to interact with the mine environment as they would in an underground emergency:
    - Casualties/Victims: Any information pertaining to these individuals must be obtained either through inquiry by the Incident Commander (Briefing Officer) prior to or during the emergency, or through active first aid engagement by the Mine Rescue Team. On both live casualties/victims (actors) and simulated casualties/victims (manikins/dummies) injuries will be displayed visually by makeup/moulage, or through verbal or physical communication.
    - Machines, objects and their state: Equipment and objects are to be interpreted as found. For example, if the scenario calls for the Mine Rescue Team to come upon a piece of running mobile equipment, the equipment will actually be present and running in the mine. In this example, Mine Rescue Teams are to approach such equipment with caution, turn off or remove power to the unit and remove any other hazards before passing or working around the equipment.

- Conditions in headings and the state of ground (rock) support: All travelways used during the competition will adhere to Ontario legislation, best practice and Vale standards with respect to ground (rock) support, and teams will be physically prevented from entering unsupported or unstable areas.
- Physical hazards: Common hazards such as debris, flooded areas, waste rock, garbage or confined workings will appear in the mine where required. Teams are to interpret whether these areas can be safely navigated, whether work is required to remediate the area for safe work, or whether the hazard is unsafe to pass. For example, a depression in the mine drift resulting in a 1ft deep pool of water can be safely navigated on foot, however a sump area containing 15 ft of water would be deemed impassable unless a means to evacuate the water was present.
- Gas concentrations and/or smoke: Please note, gas concentrations will not be given to Mine Rescue Teams by Judges or via placards. Rather, artificial gas readings will be live-transmitted to gas monitoring devices carried by Mine Rescue Teams. It is the responsibility of the Mine Rescue Team to check the device for gas concentrations where necessary and react appropriately to any alarms that occur.

- Where it is not possible or fair to expect teams to interpret the environment without assistance, Mine Rescue Teams will be instructed during Equipment Orientation to look for large symbols or signs in the mine to indicate a specific condition.

Fresh Air Base

- 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.
- At the Fresh Air Base there will be 1 member of the team, Incident Commander (Briefing Officer), who will perform the following duties:
  - Interacting with specialists and leadership of the mine (Control Group)
  - Communicating with the Mine Rescue Team;
  - Annotating a map of the emergency area including all Mine Rescue Team findings;
  - Keeping a log-book of emergency operation;
  - Analyzing conditions in the place of emergency in order to prevent complications and ensure safety of team members;
  - Interacting with reserve teams (if necessary);
- Incident Commander (Briefing Officer) at the Fresh Air Base will not have visual contact with the Mine Rescue Team on the field.
- In the case of a performing Mine Rescue Team returning to the Fresh Air Base, the Incident Commander (Briefing Officer) 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) must return to their communication station.
- Incident Commanders (Briefing Officers) stationed at the Fresh Air Base do not need to be equipped with their own respirators.
- The Incident Commander (Briefing Officer) 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.

2.1.2 Equipment

General

- Underground rescue teams will be supplied with identical rescue equipment
- Field test and procedures will be provided in advance
- Minimum Equipment Provided by organizers:
    - Self-contained closed circuit breathing apparatus (Drager BG4). Please see section 6.2.5, teams are not required to be proficient in the use of the BG4. If teams have concerns regarding the breathing apparatus, they should contact IMRC 2016 organizers as soon as possible.
    - Electronic Gas monitoring system (Industrial Scientific MX6, Drager x-am 5000, or alternate).
    - Fully equipped First Aid Kit (Medical bag), rescue basket and spine board
    - Team member reserve (backup) breathing apparatus
    - Casualty (victim/injured person) rescue breathing apparatus (Portable Resuscitator). CAREvent DRA or other.
    - Captain's notebook and/or clipboard including mine maps/plans
    - Communication devices (eg. Wireless radio)
    - Firefighting equipment (eg. extinguishers, hose & nozzle, AFFF, etc.)
    - Cap lamps (miner's lamp). Please note, all hard hats should be capable of attaching such a lamp as specified in 4.3.3
- Minimum Equipment required by Teams
    - Personal protective equipment outlined in section 4.3 of the "Rules Governing IMRC 2016" is the responsibility of each team member
    - Team linking device for low-visibility
- Additional/Supplementary Rescue Equipment
    - The Fresh Air Base may be furnished with supplementary rescue equipment (pneumatic lifting bags, hydraulic and pneumatic jacks, scissor expander, rescue rope, pyrometer, thermal imaging (IR) camera, pickaxe, axe, hand saw, etc.) as well as a standby breathing apparatus that can be substituted if one of breathing apparatuses operated by the team is failed.
    - The requirement for use of this supplementary equipment will be dictated by the scenario and decision of the Mine Rescue Team. Any equipment likely to be required will be presented to teams during the Equipment Orientation meeting to provide an equal understanding of when the equipment would be required.
- Failures
    - When 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 count stops and the defective breathing apparatus is substituted with an functioning unit.

2.1.3 Technical Standards

General

- No applicable technical standards are required to be studied at this time.

2.1.4 Team Procedures, Roles, Responsibilities

General

- Each participating team shall be made up of **five rescuers** who will be wearing breathing apparatus underground, as well as one Incident Commander (Briefing Officer) who will be stationed on surface at the Fresh Air Base.
- The team members participating must be registered before leaving isolation
- Teams must explore underground workings without the assistance of any Judges.
- The scope of tasks that must be completed during the simulation include:
    - Team preparation and donning of the breathing apparatuses
    - Team preparation of standard and auxiliary equipment to be taken underground
    - Establish the teams assignment, which may include but are not limited to the four main priorities of mine rescue and recovery work, both fire and non-fire:

      Priorities during an Emergency

      1. Ensure the safety of all Mine Rescue Team members at all times in all situations
      2. Ensure the safety and safe evacuation of known Casualties (victim/injured persons)
      3. Fight and eliminate all known fire and combustion related hazards in the underground mine
      4. Examine the underground mine for concentrations of gas contaminants that prevent the safe operation of the mine and restore proper ventilation when possible.

Casualties (Victims/Injured Persons)

- Location found must be noted on Captain's map as well as Incident Commander (Briefing Officer) map
- All casualties (victim/injured persons) not located in permanent refuge chambers safe from the emergency must be evacuated/transported to the surface Fresh Air Base
- Casualties/victims/injured persons found in contaminated atmospheres must be immediately protected with a rescue breathing apparatus if available for transportation. If no rescue breathing apparatus or self-rescuer apparatus is available, thought must be given to the nearest source of fresh air to temporarily station the individual.

Mine Maps/Plans

- Two annotated Mine Maps/Plans are to be created during the simulation, one by the Mine Rescue Team and the other by the Incident Commander (Briefing Officer)
- Only information related to the emergency must be noted on the mine maps/plans. The following information must be marked on the map or specified on the Captain's notes
    - Location of gas and temperature measurements
    - Location of missing persons (victims/casualties)
    - Location of hazards

- Mine Rescue Teams do not need to mark on maps/plans the location of stops to check reserves of oxygen and physical condition of rescuers, however the time that these checks occurred must be noted on either the map or Captain's notes
- 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 maps/plans
- 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 maps/plans
- The scenario will be limited to working on the main travel way levels but it may include boreholes, shafts and raises that could influence the ventilation system changes.
- On completing the task, the Mine Rescue Team Captain and Incident Commander (Briefing Officer) will be provided time for a short discussion to finalize their mine plans/maps prior to presentation to the Judges. Both maps will be compared and evaluated to their similarity and then scored.

Hazards

- Any hazard to the safety of the Mine Rescue Team that is encountered in the underground mine must be eliminated and reported to the Incident Commander (Briefing Officer) prior to proceeding past the hazard. Preventing exposure of the Mine Rescue Team to a life threatening hazard takes first priority over any other tasks. Hazards include, but are not limited to:
    - Unsupported ground/rock
    - Explosive concentrations of gas
    - Live fire
    - Electrical hazard
    - Flooding
    - Unsafe/Unsecured equipment
    - Operating machinery
- If at any time the Simulation Lead Judge feels that a team members safety may be compromised the action will be stopped and re-direct (penalty) points will apply

Fires

- When a mine rescue team encounters a **non-combatable** fire it should seal the fire without delay and regulate ventilation regime so that to restrict the air flow to the fire and prevent it from further advance.
- Fire-fighting rescue actions are carried out with the aim to salvage endangered persons, mitigation of the fire expansion, extinguishing of the fire with use of active or passive measures.
- Active putting out of fires consists in its direct extinguishing e.g. by flooding with water or hydraulic filling, use of extinguishing agents (foams, powders), etc. Passive extinguishing consists in sealing of the region where the fire has occurred by erection of sealing walls (dams) and, if possible, supplying of inert gases to the encapsulated area.
- Fire-fighting rescue actions should comprise actions aimed at active extinguishing of fires while keeping the rescuers on the fresh air side when possible
- Active extinguishing of fires is not allowed under the following conditions:
    - When an explosive concentration of gas is present

- When the atmosphere is too hot to proceed

- When excessively high temperature prevents from application of active methods for extinguishing of the fire in the areas with no methane hazard the rescue team should restrict inflow of air to the fire zone by erection of barricades (dams).
- For zones with the methane hazard where active extinguishing of the fire proves infeasible the rescue team should embark on sealing of the fire zone with use of isolating barricades (dams) of explosion-proof design.
- Rescuers are prohibited to enter fire zones where the temperature exceeds 60ºC.

Incident Commander (Briefing Officer)

- Prior to (and during) the emergency, an unseen group of mine administrators ("Control Group") will have ultimate authority over the site and emergency response plan. This group has given responsibility for all Mine Rescue Team activity planning to the Incident Commander (Briefing Officer), however at any time they may direct the Incident Commander (Briefing Officer) to change his/her designated plan to align with the overall site emergency response plan. In this way, the Incident Commander (Briefing Officer) reports directly to this group and must obey their instructions when presented, however he/she has the freedom to proceed as they see fit in all other circumstances. During the competition, instructions from this group will be presented to the Incident Commander (Briefing Officer) by a Judge or via phone/radio communications.
- The Incident Commander (Briefing Officer) Simulation Judges will take the Incident Commander (Briefing Officer) into a separate room during the time the pre-use equipment testing by the respective team is being performed. Mine plans and a copy of the emergency narrative (record of events that have taken place up to that point) will be made available to the Incident Commander (Briefing Officer). The Incident Commander (Briefing Officer) may ask any question of the Judge, and any reasonable question will be answered, but a sense of urgency must prevail.
- Care must be taken that the Judge remains available for any questions for exactly the same length of time in each case. Sufficient time will then be allowed for the Incident Commander (Briefing Officer) to study the mine plans and the narrative.
- The Incident Commander (Briefing Officer) will be responsible for detailing the proposed assignment for the Mine Rescue Team being deployed. This proposed assignment will be evaluated prior to notifying the Mine Rescue Team.
- The Incident Commander (Briefing Officer) Simulation Judges will then present detailed (complete or partial) written instructions to the Incident Commander (Briefing Officer), outlining the mandatory team assignment. This is done to ensure that each Mine Rescue Team begins the task with the same information so that they may be equally judged from that point forward. The Incident Commander (Briefing Officer) and Judges will discuss these instructions to be sure the Incident Commander (Briefing Officer) understands them and the reasoning behind them. Any differences between the Incident Commander (Briefing Officer) plan and mandatory task plan will result in a penalty being applied to the overall scoring.
- The Technical Mining Translator that attends the competition with each team will be stationed with the Incident Commander (Briefing Officer) at all times. The Translator will be responsible for translating all discussion between the Incident Commander (Briefing Officer), Judges and radio communication with the Mine Rescue Team.

Ventilation

- Ventilation changes are considered to be any combination of stopping, starting or redirecting the airflow/current within the mine
- Re-direction of the air current should be made by means of erection temporary stoppings, breaking existing ventilation installations, regulating air flow.
- Before changes are made to ventilation, Mine Rescue Teams must receive permission from the Control Group (mine management authority) through a request from the Incident Commander (Briefing Officer).
- It is permitted to change ventilation when all accessible areas have been explored;
- To direct airflow, containing irrespirable gases or explosive air-gas mixture through unexplored areas is strictly prohibited;
- When passing ventilation constructions a team should maintain the existing regime of ventilation;
- Regulating airflow to control a fire is considered as a ventilation change. ;
- When breaking a brattice (curtain) irrespirable or explosive gas mixture is not to penetrate beyond barricade;
- While controlling the ventilation system a team should exclude the possibility of penetration air current, containing explosive gas mixture to areas where may exist sites of ignition, sparking or smoldering;
- It is permitted to ventilate unexplored areas provided permission is given to the Incident Commander (Briefing Officer) by the Control Group (mine administration officials)

Tasks

- Teams must don their primary breathing apparatus and be under respiratory protection prior to entering any area of known respiratory contamination
- Upon entering an area of known respiratory contamination, a survey of gas concentrations must be taken for the following contaminants:
    - Carbon Monoxide – CO
    - Methane – CH_4
    - Oxygen – O_2
- It should be noted, the hard rock mine in which the Underground Simulation is being conducted does not have a history of methane contamination.
- While re-entering the zone where gas testing has already been performed there is no need to perform testing again, provided that ventilation conditions were not changed.
- Upon first entering an area of known respiratory contamination, an apparatus check is required.
- Additional location for air quality (gas concentration) checks include:
    - At the shaft (or portal/ramp) entrance
    - After crossing a ventilation dam/barricade (in front of and behind the dam) if conditions appear to have changed
    - Locations where victim/casualties are found
    - First appearance of smoke
    - Location of fire and after having it put out
    - Locations where the team carries out tasks
    - Areas of confined space or suspected oxygen deficiency

- 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 the following:

- Upon entering an area of elevated ambient temperatures, a survey of climactic conditions must be taken via the following readings:
  - Dry Bulb Temperature
  - Wet Bulb Temperature
- Temperature readings are used determine the maximum allowable working time for Mine Rescue Teams according to the following chart which will be provided to each team:

Mine Rescue Heat Exposure Standard

Wet Bulb Temp.	24	26	28	30	32	34	36	38	40	42	44	46	48	50
38								19	19	19	19			
37								20	19	19	19	19	19	
36							22	22	21	20	20	19	19	19
35							24	23	22	22	22	21	20	20
34						27	26	25	24	23	23	22	22	22
33						29	28	27	27	26	25	24	23	23
32					33	32	31	30	29	28	27	26	26	25
31					38	36	35	33	32	31	30	29	28	27
30				46	44	42	40	38	36	34	33	32	30	30
29				53	50	48	45	43	41	39	38	36	34	32
28			63	60	57	55	52	50	47	45	43	41	39	37
27			72	69	66	63	60	57	54	52	49	47	45	43
26		87	83	79	75	72	68	65	62	59	56	54	51	49
25		99	95	90	86	82	78	75	71	68	65	62	59	56
24	119	114	108	103	99	94	90	85	81	78	74	71	67	64
23	*	*	*	118	113	108	103	98	93	89	85	81	77	73

Dry Bulb Temp.

Cross-referencing the Wet Bulb and Dry Bulb temperatures indicates the maximum time exposure in minutes.
Exposure limits include time for entry, exit and rest breaks.
Exposure limits must not be exceeded.

- Where possible and appropriate for ventilation conditions, smoke will be represented by an actual smoke or low-visibility environment. Smoke or low-visibility environments will be created by mechanically generated smoke to ensure consistent quality.
- When Mine Rescue Teams are travelling in areas of low or zero visibility, teams must link or connect all members to ensure the safety of all members at all times. Linking or connecting in low visibility

must notify all other team members if any team member becomes separated from the team or experiences duress. Teams may link or connect in low visibility in the following ways:

- While carrying the rescue basket, all members are considered linked or connected. If the Captain does not carry the rescue basket, the Captain must be fastened to the rescue basket by some other means.
- Through the use of a linking rope, lanyard, cord, elastic or other device by which all members are connected to one-another. Teams may use the rope, lanyard, cord, elastic or other device that is utilized in their home jurisdiction.
- Teams are not considered linked or connected while holding a rescue basket that is being transported by a rolling cart or vehicle.
- Teams may disconnect from one another when performing a task (eg. building a ventilation barricade) at a fixed location but must be linked when advancing or returning as a team
- The act of active firefighting is considered a task as defined above

Team Safety

- Every 20 minutes the team should stop and the Captain must check the reserve of oxygen in breathing apparatuses of each rescuer, including his/her own, as well as their physical condition.
- If the oxygen reserve in a breathing apparatus of any team member drops below 25% of the initial value, the Captain must report the situation to the Incident Commander (Briefing Officer) and determine the safest plan of action for returning to the Fresh Air Base
- Captain must assist team members in the check of their face mask seal initially upon donning the breathing apparatus and must re-check after travel through confined spaces or ladderways.
- Rescuers must demonstrate a sense of urgency at all times, but are not permitted to run while they travel through the mine simulation

Captain

- When arriving at an assigned worksite or destination, the Captain must provide feedback to the Incident Commander (Briefing Officer) regarding findings and measurement results.
- Roof of explored workings should be visually checked in the following cases: at locations of fires prior to commencements of the fire extinguishing and after having it put out, at each crossing of the fire location, at rock falls, prior to erection of a dam (barricade), at the face end and prior to erection of props to strengthen roof support of the working. Locations of rock or ground issues must be marked on the maps. As the simulation is being conducted in an underground hard-rock base metal mine, where active or passive ground support has been installed it shall be considered competent by visual inspection.
- Captain should continuously supervise activities of all members of his team during the rescue jobs. Captain may participate in jobs assigned to the rescue team unless it restricts his abilities to look after safety of all the team members.
- Mine Rescue Team members are not allowed to go away from the workplace of the team or to carry out any jobs without a previous consent of the team Captain.
- When transportation of injured persons via already explored roads proves infeasible they may be evacuated through unexplored workings.

- Prior to crossing a low passage all team members shall take breathing apparatuses off their backs. While covering the passage all team members **do not** need to be connected together by means of a rescue rope. When an injured person on a stretcher is hauled through a low passage it is essential to take extreme care of his safety.
- Rescuers are not allowed to go away from the workplace of the rescue team or to carry out any jobs without a previous consent of the team Captain
- Upon completion of the task and arriving back to the rescue fresh air base the team Captain reports to the Incident Commander (Briefing Officer) that the team is back and outlines how the task was completed with own comments and remarks.
- Only the team Captain may give the order to remove facemasks and request the team remove oxygen once back at the Fresh Air Base

Communication

- The rescue team on its way to the location of assigned rescue jobs, during execution of such jobs and on their way back must attempt to remain in in continuous voice communication with the Incident Commander (Briefing Officer). In the event that communication capability is lost while advancing or retreating from the mine, the Mine Rescue Team must return to the last location of functioning voice communication to notify the Incident Commander (Briefing Officer). Mine Rescue Teams may proceed into areas containing no voice communication capability provided the Incident Commander (Briefing Officer) is notified and a strict time limit for return to the communication point is established.
- When voice communication is interrupted because of a known issue, Mine Rescue Teams should attempt to repair the system or seek permission to continue without voice communication.

2.1.5 Evaluation Criteria

Equipment

- Teams will **not** be evaluated on the pre-use testing (field test) of the primary Mine Rescue Team breathing apparatus (Draeger BG4). This is to ensure fairness for teams that do not use the BG4 within their home jurisdiction. All BG4 breathing apparatus provided to the team may be considered ready-to-wear, at which point teams may don the apparatus as instructed during orientation. In the interest of fairness, all teams are given the opportunity to begin under oxygen on a level playing field, after which time how they perform in the emergency scenario will determine how they are scored.
- Teams will **not** be evaluated on the post-use service (cleaning & function test) of the primary Mine Rescue breathing apparatus (Draeger BG4). This is to ensure fairness for teams that do not use the BG4 within their home jurisdiction. All cleaning and service of Draeger BG4 breathing apparatus will be done by Draeger personnel.

Tasks

- Competitors (Mine Rescue Team Members) are encouraged to carry out tasks as safely, efficiently and quickly as they normally would during an actual mine emergency in their home jurisdiction. However, because all tasks are being evaluated for completion or quality, competitors must ensure their activities can be viewed clearly by either an in-person Judge or monitoring camera, or that their

work can be inspected once the team has left the task area. As often as possible, verbal communication of tasks between Competitors and Judges will not be required or encouraged to remove any disadvantage to non-English speaking teams.

- Simulation Judges will follow the team's progress on the floor and will be responsible for judging proper team procedures.
- Judges will remain in fresh air where possible and if not will be provided with an assured supply of fresh air. Use of thermal imaging cameras for evaluation can be used where conditions allow.
- The underground simulation will be laid out in such a way that teams will be able to navigate through the scenario with little to no assistance from the Judges.
- Unlike previous International Mines Rescue Competitions, where possible the "completion" or tasks will be determined by the Mine Rescue Team rather than a Judge. Teams must balance the efficient and timely completion of a task with the quality required to achieve the goal, as they will be evaluated on both aspects. For example, if an object must be lifted off of a pinned casualty/victim, the Mine Rescue Team may choose to lift only the minimum height required to scrape the person from underneath without supporting or stabilizing the load. This may appear to save time, however the Mine Rescue Team will be evaluated as having done poorly with respect to safety, casualty care and task planning.

Underground Time Limits

- The underground simulation will have a time limit determined by the Chief Judge and Lead Underground Simulation Judge
- Teams will be advised of the time limit prior to simulation
- Teams will be advised to get out of oxygen once the time limit has expired identifying the end of the problem
- Once the team is directed to get out of oxygen, the team will not qualify for any potential remaining merit points available in the simulation
- The pre-determined time limit will be established to allow teams more than sufficient time to complete the entire problem or task, should they fully understand their objectives and work towards achieving them. It is important to note, the time limit is not intended to be utilized as in previous International Competitions to stop teams from completing the task. The time limit is reserved as a last resort by the Simulation Lead Judge to remove a competing team from the field where they have clearly demonstrated a lack of progress towards the task specific goals. This must be done to ensure the continuation of the competition for remaining teams.

Scoring

- The Underground Simulation will be judged using a merit system with "0" being assigned to a task that is not done or skipped. Merits will range between 0-25 depending on the difficulty of the task.
- Scoring of each task will be done by more than one Simulation Judge independently, each from differing Mine Rescue jurisdictions. 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.

- See additional scoring rules in section 5.4 of "Rules Governing IMRC2016"

Completion

- The problem will be considered completed when the Control Group (Judges interacting with Incident Commander) instruct the Incident Commander that the task has been completed. This may occur at any stage of the simulated emergency, regardless of overall completion, as dictated by the conditions and timeline.

3.0 UNDERGROUND FIREFIGHTING SCENARIO

3.1.1 Format

General

- The Underground Firefighting Scenario is mandatory for all teams participating in the 2016 IMRC Overall Team Competition.
- Task will be carried out in an inactive underground hard rock (base metal) mine
- The Underground Firefighting Scenario will involve the extinguishing of a live fire in an enclosed underground mine environment
- Location:

  Underground Research Site
  155 Magill Street, Lively, ON, Canada
  (Coordinates: 46.432020, -81.124270 or 46°25'55.3"N 81°07'27.4"W)
- Mine plans/maps will be provided to competing teams no later than 1 month prior to the competition date.

Photos:


STOP

3.1.2 Equipment

General

- Underground rescue teams will be supplied with identical rescue equipment
- Any pre-use test checklists (field tests) and procedures will be provided no later than 1 month in advance of the competition
- Minimum Equipment Required:
    - Self-contained closed circuit breathing apparatus (e.g. Dräger BG4 provided)
    - Electronic Gas monitoring system (Industrial Scientific MX6, Dräger x-am 5000, or alternate). Please note, gas concentrations will not be given to teams by judges or via placards. Rather, artificial gas readings will be live-transmitted to gas monitoring devices carried by Mine Rescue Teams. It is the responsibility of the Mine Rescue Team to check the device for gas concentrations where necessary.
    - Temperature Sensor (Kestrel 3500 Weather Meter)
    - Rescue basket
    - Team member reserve (backup) breathing apparatus (MSA/Auer SSR 90 M)
    - Captain's notebook, clipboard. Please note, Mine Rescue Team Captains are permitted to bring the data/note recording documents used in their home jurisdiction. Notes not recorded in English must be translated by the team Technical Translator following the completion of the task.
    - Communication devices (eg. Wireless radio)
    - Personal protective equipment as outlined in section 4.3 of the "Rules Governing IMRC 2016"

Firefighting Equipment

- Mine Rescue Teams will be supplied with identical firefighting equipment.
- Firefighting equipment will be available for viewing prior to the competition.

  - Extinguishing Agents: Use of mine water/in-line foam solutions/self-contained compressed air foam units/fire extinguishers where applicable
  - Fire hoses will be no longer than 50' each
  - Underground mine service water headers will be provided and identified for use where applicable
  - Thermal imaging camera will be provided and must be used to determine temperature of fire area
- Low Expansion Foam Fire Suppression
  - Elkhart Brass Model 241 Foam Eductor + Akron Brass Foam Tube Model 766
  - Handbook of Training in Mine Rescue and Recovery Operations, 2014, Ontario Mine Rescue P.218
  - http://www.akronbrass.com/95-gpm-brass-in-line-eductor
  - http://www.elkhartbrass.com/products/foam-eductors/portable/multimedia
- High Expansion Foam Fire Suppression
  - Rockwell Jet-X Water-Powered High Expansion Foam Generator
  - Handbook of Training in Mine Rescue and Recovery Operations, 2014, Ontario Mine Rescue P.225
  - Chemguard Diesel-Powered High Expansion Foam Generator
  - Handbook of Training in Mine Rescue and Recovery Operations, 2014, Ontario Mine Rescue P.220
- Firefighting Nozzle Fire Suppression
  - http://www.elkhartbrass.com/products/nozzles/select-o-flow/multimedia
  - http://www.akronbrass.com/1-1-2-turbojetr-nozzle-with-pistol-grip/
  - Akron Brass 1-1/2" NPSH* Turbojet Nozzle Model 1715
  - Handbook of Training in Mine Rescue and Recovery Operations, 2014, Ontario Mine Rescue P.215
- Firefighting Hose Fire Suppression
  - 50 foot or 100 foot with 1-1/2" NPSH* Couplers – Brass/Pyrolite
  - * NPSH – National Pipe Straight Hose (American Standard Straight Pipe for Hose Couplings), washer seal
- Portable Extinguisher Fire Suppression
  - https://www.ansul.com/en/us/pages/ProductDetail.aspx?productdetail=SENTRY+Industrial+Dry+Chemical+Extinguishers
  - https://www.ansul.com/en/us/pages/ProductDetail.aspx?productdetail=SENTRY+Carbon+Dioxide+Extinguishers
  - https://www.ansul.com/en/us/pages/ProductDetail.aspx?productdetail=SENTRY+Water+Extinguishers
  - https://www.ansul.com/en/us/pages/ProductDetail.aspx?productdetail=SENTRY+High-Flow+Stored-Pressure+Fire+Extinguishers
  - https://www.ansul.com/en/us/pages/ProductDetail.aspx?productdetail=SENTRY+Stored+Pressure+Dry+Chemical+Extinguisher+
  - https://www.ansul.com/en/us/pages/ProductDetail.aspx?productdetail=RED+LINE+Cartridge-Operated+Hand+Portables%e2%80%94Dry+Chemical

- Fire extinguisher classification and use based on NFPA 10: Standard for Portable Fire Extinguishers, National Fire Protection Association Codes and Standards
- Handbook of Training in Mine Rescue and Recovery Operations, 2014, Ontario Mine Rescue Pg. 210

- Thermal Imaging Camera
  - http://ca.msasafety.com/Thermal-Imaging/Thermal-Imaging-Cameras/EVOLUTION%26reg%3B-5200-Thermal-Imaging-Camera/p/000340000300001251
  - http://www.draeger.com/sites/enus_ca/Pages/Fire-Services/Draeger-UCF-7000-NFPA-Certified.aspx

3.1.3 Technical Standards

General

- Any scenario and associated evaluation will derive core principles from the following reference material:
  - **Essentials of Fire Fighting, 6th Edition**
    - Chapter 5 – Fire Behavior
    - Chapter 7 – Portable Fire Extinguishers
    - Chapter 16 – Fire Stream
    - Chapter 17 – Fire Control
- Mine Rescue Team members (competitors) will not be directly exposed to the proximity hazards of a direct fire attack. The minimum safe distance from the live fire scenarios will be established by pre-installed barriers or signage. As such, Mine Rescue Team members (competitors) will not require personal protective equipment to the standard of structural firefighting and proximity fire fighting. NFPA 1851 protective ensembles are not required.
- The minimum standard for personal protective coveralls to be worn by Mine Rescue Team members (competitors) is NFPA 2113: Standard On Selection, Care, Use, And Maintenance Of Flame-Resistant Garments For Protection Of Industrial Personnel Against Short-Duration Thermal Exposures

3.1.4 Team Procedures

General

- Each participating team shall be made up of **six rescuers** who will be wearing breathing apparatus underground, as well as one Incident Commander (Briefing Officer) who will be stationed on surface at the Fresh Air Base.
- The team members participating must be registered before leaving isolation
- Mine Rescue Teams will not be allowed to possess reference material after they leave the isolation area
- Teams must explore underground workings without the assistance of any Judges.
- The scope of tasks that must be completed during the simulation include:
  - Team preparation and donning of the breathing apparatuses
  - Team preparation of auxiliary, rescue and firefighting equipment to be taken underground

- Establish the teams assignment, which may include but are not limited to the four main priorities of mine rescue and recovery work, both fire and non-fire:

  Priorities During an Emergency

  1. Ensure the safety of all Mine Rescue Team members at all times in all situations
  2. Ensure the safety and safe evacuation of known Casualties (victim/injured persons)
  3. Fight and eliminate all known fire and combustion related hazards in the underground mine
  4. Examine the underground mine for concentrations of gas contaminants that prevent the safe operation of the mine and restore proper ventilation when possible.

Captain

During the simulation the team Captain's role is:

- Supervise and direct while maintaining care and control of all Mine Rescue Team members at all times
- Assess each situation, develop a plan of action independently, or where necessary in consultation with the Incident Commander (Briefing Officer)
- Identify and determine the priorities for Mine Rescue Team members
- Provide direction to other team members

Location Reporting

- Mine Rescue Teams must, at all times, be assigned a target destination/task and time limit by the Incident Commander (Briefing Officer). The next report to the Incident Commander (Briefing Officer) must come from the assigned destination or following completion of the assigned task.

Casualties (Victims/Injured Persons)

- There will be no requirement to perform First Aid or casualty care during the Underground Firefighting Scenario

Mine Maps/Plans

- Only information related to the emergency must be noted on the mine maps/plans.
- Any infrastructure, including but not limited to compressed air, water, radio, ground support and ventilation that is functioning normally does not need to be noted on mine maps/plans
- Any infrastructure, including but not limited to compressed air, water, radio, ground support and ventilation that has been damaged, altered, disrupted or destroyed due to the emergency must be noted on the mine maps/plans

Hazards

- Any hazard to the safety of the Mine Rescue Team that is encountered in the underground mine must be eliminated and reported to the Incident Commander (Briefing Officer) prior to proceeding

past the hazard. Preventing exposure of the Mine Rescue Team to a life threatening hazard takes first priority over any other tasks. Hazards include, but are not limited to:

- Unsupported ground/rock
- Explosive concentrations of gas
- Live fire
- Electrical hazard
- Flooding
- Unsafe/Unsecured equipment
- Operating machinery
- Note: Contaminated ventilation is **not** considered a life threatening hazard to those wearing an oxygen breathing apparatus

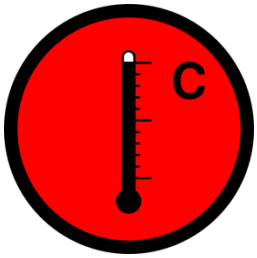
- If at any time the Simulation Lead Judge feels that a team members safety may be compromised the action will be stopped and re-direct negative (penalty) points will apply
- Proper firefighting techniques must be used when in proximity to combustion generated heat. At no point in time may a team expose members directly to heat without protection (wide pattern water fog heat barrier, physical obstacle, etc). This rule applies while advancing to fight, fighting, or retreating from a live fire or heating situation.
- The Chief Judge and Firefighting Simulation Lead Judge will create a no person entry zone (immediately around the fire) where no one will enter unless the fire has been extinguished or reduced to a manageable level. Allowances will be made for stirring an extinguished fire, checking for hot spots, etc.

Underground Time Limits

- The Firefighting simulation will have a time limit determined by the Chief Judge and Firefighting Lead Simulation Judge
- Teams will be advised of the time limit prior to simulation
- Event will be timed from the initial report of fire observation to the final extinguishment task (if multiple tasks take place).
- Teams will be advised to return to surface once the time limit has expired identifying the end of the problem
- Once the team is directed to get out of oxygen, the team will not qualify for any potential remaining points available in this simulation
- The pre-determined time limit will be established to allow teams more than sufficient time to complete the entire problem or task, should they fully understand their objectives and work towards achieving them. It is important to note, the time limit is not intended to be utilized as in previous International Competitions to stop teams from completing the task. The time limit is reserved as a last resort by the Simulation Lead Judge to remove a competing team from the field where they have clearly demonstrated a lack of progress towards the task specific goals. This must be done to ensure the continuation of the competition for remaining teams.

Tasks

- Teams must don their primary breathing apparatus and be under respiratory protection prior to entering any area of known respiratory contamination
- Upon entering an area of known respiratory contamination, a survey of gas concentrations must be taken for the following contaminants:
    - Carbon Monoxide – CO
    - Methane – CH_4
    - Oxygen – O_2
- Where possible during the Firefighting Simulation heat will be represented by an actual heated environment. If, during the Firefighting 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 the following:



- Upon entering an area of elevated ambient temperatures, a survey of climactic conditions must be taken via the following readings:
    - Dry Bulb Temperature
    - Wet Bulb Temperature
- Temperature readings are used determine the maximum allowable working time for Mine Rescue Teams according to the following chart which will be provided to each team:

Mine Rescue Heat Exposure Standard															
Wet Bulb Temp.	38								19	19	19	19			
	37								20	19	19	19	19	19	
	36							22	22	21	20	20	19	19	19
	35							24	23	22	22	22	21	20	20
	34						27	26	25	24	23	23	22	22	22
	33						29	28	27	27	26	25	24	23	23
	32					33	32	31	30	29	28	27	26	26	25
	31					38	36	35	33	32	31	30	29	28	27
	30				46	44	42	40	38	36	34	33	32	30	30
	29				53	50	48	45	43	41	39	38	36	34	32
	28			63	60	57	55	52	50	47	45	43	41	39	37
	27			72	69	66	63	60	57	54	52	49	47	45	43
	26		87	83	79	75	72	68	65	62	59	56	54	51	49
	25		99	95	90	86	82	78	75	71	68	65	62	59	56
	24	119	114	108	103	99	94	90	85	81	78	74	71	67	64
	23	*	*	*	118	113	108	103	98	93	89	85	81	77	73
		24	26	28	30	32	34	36	38	40	42	44	46	48	50
	Dry Bulb Temp.														

Cross-referencing the Wet Bulb and Dry Bulb temperatures indicates the maximum time exposure in minutes.
Exposure limits include time for entry, exit and rest breaks.
Exposure limits must not be exceeded.

- Where possible and appropriate for ventilation conditions, smoke will be represented by an actual smoke or low-visibility environment. Smoke or low-visibility environments will be created by mechanically generated smoke to ensure consistent quality.
- When Mine Rescue Teams are travelling in areas of low or zero visibility, teams must link or connect all members to ensure the safety of all members at all times. Linking or connecting in low visibility must notify all other team members if any team member becomes separated from the team or experiences duress. Teams may link or connect in low visibility in the following ways:
    - While carrying the rescue basket, all members are considered linked or connected. If the Captain does not carry the rescue basket, the Captain must be fastened to the rescue basket by some other means.
    - Through the use of a linking rope, lanyard, cord, elastic or other device by which all members are connected to one-another. Teams may use the rope, lanyard, cord, elastic or other device that is utilized in their home jurisdiction.
    - Teams are not considered linked or connected while holding a rescue basket that is being transported by a rolling cart or vehicle.
    - Teams may disconnect from one another when performing a task (eg. building a ventilation barricade) at a fixed location but must be linked when advancing or returning as a team
    - The act of active firefighting is considered a task as defined above

Team Safety

- Every 20 minutes the team should stop and the Captain must check the reserve of oxygen in breathing apparatuses of each rescuer, including his/her own, as well as their physical condition.

- If the oxygen reserve in a breathing apparatus of any team member drops below 25% of the initial value, the Captain must report the situation to the Incident Commander (Briefing Officer) and determine the safest plan of action for returning to the Fresh Air Base
- Captain must assist team members in the check of their face mask seal initially upon donning the breathing apparatus and must re-check after travel through confined spaces or ladderways.
- Rescuers must demonstrate a sense of urgency at all times, but are not permitted to run while they travel through the mine simulation

3.1.5 Evaluation Criteria

General

- There will be a minimum of two Simulation Judges per competing team
- Simulation Judges will be competent in the judging of firefighting simulations
- Simulation Judges will keep accurate start and finish times on the score cards
- The Firefighting Simulation Lead Judge will ensure the firefighting simulation is reset in an identical manner for each team
- Judges will remain in fresh air where possible, or alternatively will be provided with an assured supply of fresh air or self-contained breathing apparatus. Use of thermal imaging cameras by Simulation Judges for evaluation will occur in low visibility areas.

Equipment

- Teams will **not** be evaluated on the pre-use testing (field test) of the primary Mine Rescue Team breathing apparatus (Draeger BG4). This is to ensure fairness for teams that do not use the BG4 within their home jurisdiction. All BG4 breathing apparatus provided to the team may be considered ready-to-wear, at which point teams may don the apparatus as instructed during orientation. In the interest of fairness, all teams are given the opportunity to begin under oxygen on a level playing field, after which time how they perform in the emergency scenario will determine how they are scored.
- Teams will **not** be evaluated on the post-use service (cleaning & function test) of the primary Mine Rescue breathing apparatus (Draeger BG4). This is to ensure fairness for teams that do not use the BG4 within their home jurisdiction. All cleaning and service of Draeger BG4 breathing apparatus will be done by Draeger personnel.

Tasks

- Competitors (Mine Rescue Team Members) are encouraged to carry out tasks as safely, efficiently and quickly as they normally would during an actual mine emergency in their home jurisdiction. However, because all tasks are being evaluated for completion or quality, competitors must ensure their activities can be viewed clearly by either an in-person Judge or monitoring camera, or that their work can be inspected once the team has left the task area. As often as possible, verbal communication of tasks between Competitors and Judges will not be required or encouraged to remove any disadvantage to non-English speaking teams.
- Simulation Judges will follow the team's progress on the floor and will be responsible for judging proper team procedures.

- Judges will remain in fresh air where possible and if not will be provided with an assured supply of fresh air. Use of thermal imaging cameras for evaluation can be used where conditions allow.
- The Underground Firefighting Scenario will be laid out in such a way that teams will be able to navigate through the scenario with little to no assistance from the Judges.

Incident Commander (Briefing Officer)

- The Incident Commander (Briefing Officer) Simulation Judges will take the Incident Commander (Briefing Officer) into a separate room during the time the pre-use equipment testing by the respective team is being performed. Mine plans and a copy of a narrative (record of events that have taken place up to that point) will be made available to the Incident Commander (Briefing Officer). The Incident Commander (Briefing Officer) may ask any question of the judge, and any reasonable question will be answered, but a sense of urgency must prevail.
- Care must be taken that the judge remains available for these questions for exactly the same length of time in each case. Sufficient time will then be allowed for the Incident Commander (Briefing Officer) to study the mine plans and the narrative.
- The Incident Commander (Briefing Officer) will be responsible for detailing the proposed assignment for the Mine Rescue Team being deployed. The proposed assignment will then be evaluated before presentation to the Mine Rescue Team.
- The Incident Commander (Briefing Officer) Simulation Judges will then present detailed (complete or partial) written instructions to the Incident Commander (Briefing Officer), outlining the mandatory team assignment. This is done to ensure that each team begins the task with the same information so that they may be equally judged from that point forward. The Incident Commander (Briefing Officer) and Judges will discuss these instructions to be sure the Incident Commander (Briefing Officer) understands them and the reasoning behind them. Any differences between the Incident Commander (Briefing Officer) plan and mandatory task plan will result in a penalty being applied to the overall scoring.
- The Technical Mining Translator that attends the competition with each team will be stationed with the Incident Commander (Briefing Officer) at all times. The Translator will be responsible for translating all discussion between the Incident Commander (Briefing Officer), Judges and radio communication.

Scoring

- The Underground Firefighting Scenario will be judged using a merit point system with teams receiving points for each task that is completed or partially completed
- Scoring of each task will be done by more than one Simulation Judge independently, each from differing Mine Rescue jurisdictions. 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 Firefighting Simulation Task the Mine Rescue Team with the faster completion time for all combined related tasks will break a tie

- See additional scoring rules in section 5.4 of "Rules Governing IMRC2016"

4.0 FIRST AID SCENARIO

4.1.1 Format

General

Participation in the First Aid Simulation is optional, but encouraged for all participants. As specified in 5.1.2, teams must select which of the two optional scoring events will contribute to their Overall score. They may, however, participate in the non-scoring event in the interests of learning and the potential to win the individual task category.

The 2016 International Mine Rescue First Aid Competition will be scenario based. The scenario will be a multiple patient/casualty/victim incident. It will take place on surface at a mine site. The use of self-contained breathing apparatus will not be required.

Mine Rescue first aid teams will be made up of six team members. The team members participating must be registered before leaving isolation. A team Captain must be appointed.

The Chief Judge and First Aid Simulation Lead Judge with the assistance of a committee will develop and setup the simulation. Once developed the simulation will be sent for medical review to ensure injuries, conditions and treatments are realistic

Simulation victims/casualties will be made-up using casualty simulation art to show any injuries. Mannequins will represent patients with vital signs absent. CPR will be required immediately.

The first aid simulation will be split into two parts:

1. Providing first aid to people with various types of injuries and

2. CPR with Automatic External Defibrillation and respiratory arrest requiring rescue breathing

Any of the examples listed below may be incorporated in the simulation scenario;

Casualty Management Unresponsive/Conscious, Adult Resuscitation, CPR A + AED, 2 Person CPR, Severe Bleeding, Medical Conditions, Wound Care, Burns, Eye Injuries, Chest Injuries, Multiple Casualty Management, Poisoning, Heat and Cold injuries, Rescue Carries, Bone and Joint Injuries and Head and Spinal Injuries.

4.1.2 Equipment

General

- Mine Rescue first aid teams will be supplied with identical first aid supplies and equipment.
- First aid supplies and equipment will be available for viewing prior to the competition.

- Any pre-use evaluation tests (field tests) and procedures required will be provided no later than 1 month in advance of the competition date
- Minimum Equipment Required:
    - Fully equipped First Aid Kit, rescue basket and spine board
    - Casualty (victim/injured person) rescue breathing apparatus
    - Personal protective equipment outlined in section 4.3 of the "Rules Governing IMRC 2016" is the responsibility of each team member

4.1.3 Technical Standards

General

- The reference material being used develop the scoresheets are as follows;
    - St. John First Aid, Reference Guide
    - St. John Ambulance, Medical First Responder
    - Heart and Stroke Foundation of Canada, 2015 Basic Life Support Provider Manual
    - All participating teams should use this reference material to prepare for the first aid competition.
- The minimum level of first aid training expected will be St. John Ambulance Standard First Aid (Mine Rescue Program) or international equivalent.

Transparency and Fairness

Teams that are trained by first aid providers other than St. John Ambulance will not be at a disadvantage. With the goal of transparency and fairness St. John Ambulance and Red Cross Instructors are assisting in the development of the scenario. The treatment of all injuries will be reviewed by a medical professional.

4.1.4 Team Procedures, Roles, Responsibilities

General

Six competing team members will be expected to;

- conduct a scene assessment,
- perform primary and secondary assessments,
- provide ongoing patient care and
- transportation

Team members will be expected to perform triage;

- To determine the patient's condition and the urgency of the patient's condition
- To assign a priority to the patient's treatment and prioritize transport to an appropriate receiving facility

Team members will be expected to manage all injuries or illnesses found. "Load and Go" or equivalent methodology will not apply.

During the simulation the team captain's role is:

- Assessing the situation and developing a plan of action
- Providing direction to other team members
- Identifying and determining priorities for treatment by team members

4.1.5 Evaluation Criteria

General

There will be a minimum of two judges per patient. Judges will be competent in the judging of first aid application. Judges will keep accurate start and finish times on the score card. Judges will interview patients and examine the treatment patients received to determine their final scores. Rough handling, incomplete or poorly done treatment will be scored.

First Aid Simulation Lead Judge will be responsible to ensure the first aid simulation is set up identically for each team

In the event of a tie, the team with the faster overall time to complete the simulation will break a tie. In the event of identical completion times, a determination will be made with respect to the quality of patient care as indicated by the volunteer victim/casualties.

Communication

Communication is essential when teams are assessing patients. To minimize language barriers team interpreters should be familiar with first aid terminology. Every effort will be made to evaluate a team's actions rather than spoken word.

Time Limits

The first aid simulation will have a time limit determined by the Chief Judge and First Aid Simulation Lead Judge. Teams will be advised of the time limit prior to the simulation. The clock will start when the first aid team receives a call requesting a response to a specific emergency. Teams will proceed to the scene as quickly as possible. The clock will stop when the first aid team has completed part 1 and 2 or the time limit has expired. First aid team members must stop when time is called

Judges Instructions

Scoring: 0 = not done

1 = poor attempt

2 = needs improvement

3 = excellent meets all requirements

- Every line must be scored.
- A score of 0, 1 or 2 must be explained by the scoring Judges or the Chief Judge may reinstate the points due to lack of justification.
- When a score of 3 is applied, comments are encouraged
- If a team runs out of time a score of 0 will apply to remaining actions

Rough Handling

- Rough handling negative (penalty) points will be deducted from the total score
- Judges can deduct 1 to 5 points per each patient
- Rough handling negative (penalty) points will have a maximum of 10 points
- Rough handling deductions must be explained by the judges

5.0 HIGH ANGLE ROPE RESCUE SCENARIO

5.1.1 Format

General

Participation in the High Angle Rope Rescue Simulation is optional, but encouraged for all participants. As specified in 5.1.2, teams must select which of the two optional scoring events will contribute to their Overall score. They may, however, participate in the non-scoring event in the interests of learning and the potential to win the individual task category.

5.1.2 Equipment

General

Teams will be given an opportunity to become familiar with rope system prior to scenario. A trainer will be made available to answer technical questions.

The following is a list of equipment which will be available for use, for the teams competing in the High Angle Rescue scenario for the IMRC 2016. Teams should become familiar with these systems, in order to best increase their chances to complete a safe and effective rescue.

Pulleys:

- Rock Exotica/CMC Omni-block singles and doubles
- Rock Exotica Single & Double G-Rated 2” PMP Pulley
- Petzl Kootenay Carriage

Primary Anchor Systems (Progress Capture/Raise and Lower Systems/Belay):

- CMC MPD 13mm
- Traverse Rescue 540
- Petzl I’D L
- Rescue Figure 8 with ears

- Conterra Scarab Rescue Tool
- NFPA Rappel 6 Bar Rack
- Tandem Prussiks with a PMP
- Petzl ASAP with the ASAP'SORBER

Prebuilt Haul Systems:

- CMC ProSeries Aztek, or Rock Exotica Aztek
- Petzl JAG
- CMC CSR2 Confined Space Rescue System

Ascenders:

- Petzl Ascension handled ascender (left and right),
- Petzl shunt
- Petzl Rescucender
- Gibbs Ascender
- Etriers.

Patient Transport

- CMC Pickoff strap
- Traverse Advantage Soft Sided Stretcher
- Backboard
- SKED
- Yates A.R.V Air-Lift Rescue Vest

Artificial High Directional:

- Arizona Vortex

5.1.3 Technical Standards

General

- Team members must be trained and competent in high angle rope rescue practices.
- Rope rescue team members must wear appropriate Personal Protective Equipment. See Rules Governing IMRC 2016 Section 4.3.

5.1.4 Team Procedures, Roles, Responsibilities

General

- Rope rescue teams will be made up of six (6) competing team members.
- Rope rescue team members will check into the isolation area prior to the start of the competition.
- The simulation may utilize both live casualties and/or manikins during this event.
- No persons are to approach open edge without fall restraint or fall arrest safety apparel being worn and properly anchored. This hazard area is to be 2.8 meters or 9 feet from open edge.
- Before ascending or descending, the Simulation Lead Judge or designate will inspect rescuer prior to commencing.

Captain

- A team captain must be appointed for the High Angle Rope Rescue competition.
- Captain is responsible for:
    - Assess all risks, develop a plan to ensure the safety of all team members during the scenario and communicate that plan verbally to the Simulation Lead Judge prior to commencing.
    - Ensuring that any team member accessing the life edge of scenario is protected with fall restraint or full fall arrest with proper anchor.
    - Ensuring team members do not proceed with individual tasks while a rescue is taking place without receiving direction from the Captain
    - Identifying and determining priorities for rope rescue by team members.

5.1.5 Evaluation Criteria

General

- The Chief Judge and High Angle Rope Rescue Simulation Lead Judge with the assistance of a committee will develop and setup the simulation.
- The Simulation Lead Judge, Simulation Judge or any field officials can stop competing teams for safety concerns at any time during the rescue scenarios.
- There will be a minimum of two Simulation Judges per competing team.
- Simulation Judges will be competent in the judging of High Angle Rope Rescue simulations.
- Simulation Judges will keep accurate start and finish times on the score card
- The High Angle Rope Rescue Simulation Lead Judge will ensure the simulation is set up identically for each team

6.0 THEORY ASSESSMENT

6.1.1 Format

General

- A total of three (3) Mine Rescue Team members will participate in the testing. Teams will be notified of the number and position of team members participating prior to the event.
- All testing areas will be secluded and kept quiet as possible during testing.
- No spectators will be present during any testing.
- A single team Technical Translator will be allowed to conduct the testing with each team
- There will be one 20-question exam administered via computer input
- The question format may include pictures, videos or charts
- In the theory exam, teams will have a choice of answers for all questions (Multiple Choice Questionnaire) with only one (1) correct answer for each question.
- Any questions relating to calculations or referencing technical manuals need not be memorized in advance. Copies of notes and an explanation will be provided where appropriate.

Location:

Cambrian College
1400 Barrydowne Rd, Sudbury, ON P3A 3V8
46.528399, -80.941114 46°31'42.2"N 80°56'28.0"W

Northern Centre for Advanced Technology Inc.
1545 Maley Drive, Sudbury, ON P3A 4R7
46.536479, -80.938823 (46°32'11.3"N 80°56'19.8"W)

6.1.2 Equipment

General

- None required

6.1.3 Technical Standards

General

- Any necessary subject matter and reference manuals used for theory testing will be communicated two (2) months in advance of the competition.

6.1.4 Team Procedures, Roles, Responsibilities

General

- The competing team will provide the names of the required team members who will partake in each of the testing scenarios.
- The team member names must be provided at the competition orientation session. Substitutes will only be allowed with proof of injury or illness.
- Three members will compete in the written section.
- The Chief Judge will rule on acceptable team member selections, if so required.

6.1.5 Evaluation Criteria

General

- The Simulation Lead Judge (or designate) will supervise and administer the written test.
- Theory/Knowledge Testing questions found during competition to contain errors or misprinted information will be automatically removed from scoring for all teams competitors.
- During testing, discussions between members of the same competing team will be allowed. Discussions with members of other competing teams will not be permitted.
- Teams will be awarded two (2) points for a correct answer with their first response.
- Teams incorrectly answering on their first attempt will be allowed a 2nd attempt and will be awarded one (1) point if correct.
- If both responses are incorrect, the team will score zero (0) points and the correct answer will appear.
  [Immediate Feedback Assessment Technique (IF-AT)]

Time Limit

- Total time limits will be communicated before the start of the examination.
- Time status will be communicated periodically during the examination with a one (1) minute final warning.
- The theory test will have a maximum of 20 minutes for completion.

Immediate Feedback Assessment Technique (IF-AT)

As previously specified, theory examination questions will be presented with multiple possible answers available for selection. Teams will be notified if their initial answer is incorrect. If the initial answer submitted is incorrect, the team will be given subsequent opportunities to select the correct answer from the remaining choices. Points will be awarded based on the number of attempts required to determine the correct answer. In this manner, Mine Rescue Teams will learn from any errors. Because points are awarded even in the event of an incorrect answer, Mine Rescue Teams have the opportunity to maintain a close gap with other teams rather than falling too far behind.

7.0 TECHNICIAN BENCHING EQUIPMENT MAINTENANCE COMPETITION

7.1.1 **Format**

General

Each team is allowed to appoint one participant (technician) to compete in maintaining the breathing apparatus. Registration will be made with the team registration.

7.1.2 **Equipment**

General

PSS BG-4 Plus

Each participant shall be provided with a fully assembled breathing apparatus, a kit of tools, an isolation test kit and a Test-it 6100 for checks and maintenance, liquid for detection of leaks as well as all spare parts that are necessary to carry out the task. During execution of their tasks the participants are allowed to use exclusively the tools and measuring instruments provided by the organizer.

Should any unpredicted defects of the breathing apparatus are revealed during the contest, the referee shall advise the participants that such failures are out of the competition scope. The participant should turn back when only the referee stops the time count. After the defect is remedied the time count shall be restarted and the participant is allowed to carry on his task. When defects are caused by a participant's fault, the time count is not stopped.

If the defect caused by the participant fault prevents from further inspection the participant shall be disqualified.

When any test instrument is damaged by the participant, such a participant shall be disqualified.

7.1.3 Technical Standards

General

- PSS BG-4 Plus

7.1.4 Technician Procedures, Roles, Responsibilities

General

The scheduled inspection shall be carried out in accordance with the maintenance manual of the apparatus manufacturer. All items of the inspection are awarded with the score of 0 or 1 point.

All checks must be listed on the inspection sheet in the sequence required by the breathing apparatus manufacturer and accompanied with values test parameters to be indicated by measuring instruments.

Use of incorrect units, e.g. 'bar' instead of 'mbar' shall be considered as error in the specific check and the participant shall score no points for such a check.

If a defect or deficiency is detected the participant should remedy it in the appropriate manner and write down the defect on the inspection sheet.

Failure to write down the detected defect on the inspection sheet shall be considered an omission in seeking for a defect or skipping the inspection item.

The task shall be considered as successfully performed when the breathing apparatus is completely assembled, checked and ready for use.

The participant is allowed to return to remedying defects that have not been eliminated beforehand provided that the assigned time limit is still sufficient.

When the checks are carried out not in line with the sequence prescribed by the maintenance manual the participant shall get no score (zero points) for each such check, even it is carried out correctly.

The overall time limit assigned for completion of the task, i.e. to carry out all checks and remedy all defects and deficiencies shall be 30 minutes. After that time the breathing apparatus should be ready for use. In five minutes prior to expiring of the time limit the referee shall advise the participant that his time limit is just about to expire.

The time count is started by the referee upon the participant appears at the inspection workbench.

If the time limit assigned to complete the competition is exceeded the participant shall be disqualified.

7.1.5 Evaluation Criteria

General

The Technician Simulation Lead Judge and team shall prepare workbenches to carry out the contest. Workbenches shall be assigned to participant by drawing prior to commencement of the contest. Equipment and instruments as well as defects of breathing apparatuses shall be the same on all workbenches for the specific breathing apparatus type.

Technician Simulation Judges shall evaluate performance of participant on the current basis in line with the score card but are not allowed to meddle in execution of tasks by the participants. Upon completion of the task the participant shall hand over his “Breathing apparatus inspection sheet” to the Judge.

The decision of the Technician Simulation Lead Judge is final and binding.

The winner shall be nominated on the basis of the total score granted for correct completion of the scheduled inspection and for detection of deficiencies. The scores shall be granted according to the attached score card, where 1 (one) point shall be granted for each check that shall be carried out correctly and for each defect of deficiency that shall be detected and successfully remedied. Otherwise the participant shall get no score (zero points) for each incorrect check or omitted defect. The deficiencies can also stem from incorrect assembling of the breathing apparatus. When the score of several participants is the same the standing shall be determined against the time of the task completion.

TECHNICIAN CONTEST - DRAEGER BG-4
Judges' Working Scorecard

Apparatus Serial # _____

Test Date _____

Visual Inspection _____

Low Pressure Alarm
(Negative Pressure Warning) _____

Inhalation Valve _____

Exhalation Valve _____

Drain Valve _____

Positive Pressure Leak _____

Relief Valve _____

High Pressure Leak Test _____

Constant Metering (Dosage) _____

Minimum Valve _____

Bypass Valve _____

Residual Warning _____

Battery Check _____

Test OK (initials) _____

Replacement Parts _____

Ready for Use

Team No. _____

Technician _____

Company _____

Time

0 Bug _____
1st Bug _____
2nd Bug _____
3rd Bug _____
4th Bug _____
5th Bug _____

Time to Complete Problem

Min _____ Sec _____

Summary of Discounts

Written test questions incorrect:
1 discount x _____ = _____
Monthly check not performed:
5 discounts x _____ = _____
Monthly checks out of order:
5 discounts (total) _____
Deficiency (bug) not found:
15 discounts x _____ = _____
Deficiency (bug) not corrected:
5 discounts x _____ = _____
Sucking/Blowing Valves:
10 discounts x _____ = _____
Apparatus not "Ready for Use":
5 discounts (total) _____

Total Discounts _____

Judges _____

Team No. _____

Technician _____

Company _____

Problems Found	Corrected
0 Bug	_____
1st Bug	_____
2nd Bug	_____
3rd Bug	_____
4th Bug	_____
5th Bug	_____

Judge's Signature

Bench Person's Signature

DRAEGER BG-4 BREATHING APPARATUS
Testing Procedures

STEP	TESTER SETTING	PROCEDURE HINTS
1. Visual Inspection		Check for good condition.
2. Insert O_ Cylinder		Fully Charged.
3. Insert Canister		Factory Sealed or Reusable.
4. Facepiece and Hoses		Check for good condition.
5. Low pressure warning	Pos. Pres. Pumping	Watch pressure gauge, activation should sound at 1.25 mbar.
6. Inhalation Valve	Pos. Pres. Pumping	Pinch exhalation hose – 10 mbar indicated on gauge.
7. Exhalation Valve	Neg. Pres. Pumping	Pinch inhalation hose – 10 mbar indicated on gauge.
8. Drain Valve	Pos. Pres. Pumping	Pump until 10mbar is indicated on gauge. Fit sealing cap over tappet of relief valve as bag inflated. Drain valve must not open at 10 mb.
9. Leak Test	Leak Test	Reduce Pres. to 7 mbar pressure should not change by more than 1 mbar in 1 minute.
10.Relief Valve	Pos. Pres. Pumping	Pump until relief valve opens. Opening pressure, should lie between 2 & 5 mbar.

(Alternate Relief Valve Test, can be performed after Step 14.)

STEP	TESTER SETTING	PROCEDURE HINTS
11. High Pressure Leak	Leak Test	Open cylinder valve. Alarm sounds once. CCR (Close Cylinder). Alarm sounds once, green indicator flashes. OCR (Open Cylinder)
12. Constant Metering Valve	Pos. Pres. Pumping Dosage .05-2 L/min	Inflate breathing bag. Fit sealing cap over tappet of relieve valve. Constant metering dosage should lie between 1.5 and 1.9 L/min.
13. Minimum Valve	Neg. Pres. Pumping	Pump slowly until minimum valve is opening. Minimum Valve should open between 0.1 and 2.5 mbar.
14. Bypass Valve ***(Alternate Relief Valve Test)***	Leak Test	Press red button. Breathing bag inflates. Observe Reading on tester, relief valve should open between 2 and 5 mbar.
15.	Low Pressure Warning	Close cylinder valve. Warning sounds at 55 bar.
16.	Battery Check	If Failing: Alarm sounds 5 Times. Red indicator flashes for 30 sec. Bat is displayed.

BG4 FUNCTION TEST RECORD UNIT#_____

Function Test Date (month as Jan – Dec)	mmm/dd/yy			
First initial, last name of technician				
Visual Inspection (incl. belt & lanyard)	OK/Repaired			
O_2 Cylinder Hydrostatic Test	OK/Replaced			
Face Mask Inspection	OK/Repaired			
Low Pressure Warning	<1.4 mbar			
Inhalation Valve	OK/Repaired			
Exhalation Valve	OK/Repaired			
Moisture Relief Valve	>15 mbar			
Positive Pressure Leak	OK/Repaired			
Pressure Relief Valve Activation	2-5 mbar			
O_2 Cylinder Pressure	>185 bar			
Constant Dosage Rate	1.5-1.9L/min			
Minimum Valve Activation Pressure	.1-2.5mbar			
Bypass Valve	OK/Repaired			
Low Pressure Alarm	55 bar			
Battery Test	OK/Repaired			
Date battery to be replaced	mmm/dd/yy			
Date soda lime to be replaced (6 months)	mmm/dd/yy			
Unit sealed and dated	Y/N			

APPENDIX A1 – UNDERGROUND MINE RESCUE SCENARIO/SIMULATION

U/G SCENARIO

336

TEAM: Vietnam Vinacomin

Time Under O_2 2:04:33 Shawn DeForge Time Casualty at F/A _____

MERITS

1. *Team to be briefed by Briefing Officer*	0 – 5	5
a. *Information Available*	0 – 2	Ø
b. *Missing People Underground*	0 – 2	Ø
c. *Actions Taken So far*	0 – 2	Ø
d. *Team Assignment*	0 – 2	2
e. *Route of travel*	0 – 2	2
f. *Reserve Mine Rescue Teams*	0 – 2	Ø
g. *Expected Conditions*	0 – 2	Ø
h. *Mine Rescue Equipment available*	0 – 2	Ø
i. *Transportation available*	0 – 2	2
j. *Location of First aid*	0 – 2	Ø
k. *Communication Method*	0 – 2	Ø
l. *Synchronize Watches*	0 – 2	Ø
m. *Establish Time Limits*	0 – 2	Ø

11

2. Prepare Emergency equipment to be used underground		
a. Gas checking equipment	0 – 3	3
b. First Aid Supplies	0 – 3	3
c. Back up apparatus for team	0 – 5	5
d. Maps, note pad	0 – 5	5
e. Basket/Backboard	0 – 3	3
f. Casualty Breathing Apparatus	0 – 5	5
g. Firefighting equipment	0 – 5	5

29

U/G SCENARIO

3. Prepare team breathing apparatuses
   a. Perform high pressure leak test 0 – 10 10
   b. Install Ice 0 – 5 5
   c. Anti fog mask 0 – 5 5

4. Team under oxygen outside of Fresh Air Base 0 – 10 10

5. Verify breathing apparatus is functioning properly 0 – 10 0

6. Ensure Toyota operator is wearing breathing apparatus 0 – 5 0

7. Contact BO
   a. Time Limit 0 – 2 0
   b. Destination 0 – 2 0
   c. Time Team under 0_2 0 – 2 0

8. Board Toyota in a safe manner 0 – 5 5

9. Enter mine via Portal 0 – 5 5

10. Stop inside of portal 0 – 5 0

40

U/G SCENARIO

11. Evaluate Conditions

a. Smoke	0 – 2	0
b. CO	0 – 2	0
c. Radio	0 – 2	0

12. Perform Team Check

d. BG4 functioning	0 – 5	0
e. Team OK	0 – 5	0
f. Record info	0 – 5	0

13. Contact BO via radio

a. Report Conditions	0 – 3	0
b. Team Status	0 – 2	0

14. Proceed down ramp via Toyota — 0 - 5 5

15. Locate unconscious Truck Operator — 0 - 20 18

16. Contact BO via Radio

a. Report Truck operator located	0 – 5	5
b. Report Conditions	0 – 3	3
c. Time Limit	0 – 2	0
d. Destination	0 – 2	0
e. Team Status	0 – 10	0

31

U/G SCENARIO

17. Perform First Aid (Primary)

a. Airway	0 – 3	0
b. Breathing	0 – 3	0
c. Circulation	0 – 3	0
d. Gross Bleed Check	0 – 3	3

18. Protect Casualty from further contamination — 0 – 5 5

19. Identify as Load and Go — 0 – 18 ✓

OR

Perform First Aid (Secondary)

a. Check head, eyes, ears	0 – 2	0
b. Check neck and throat	0 – 2	0
c. Check arms (left and right)	0 – 4	4
d. Check Torso (front and Sides)	0 – 2	0
e. Check Pelvis	0 – 2	0
f. Check Legs and Feet (left and right)	0 – 4	4
g. Check Back	0 – 2	0

19. Load casualty into stretcher — 0 – 10 4

20. Transport Casualty to First Aid (surface) — 0 – 10 5

25

U/G SCENARIO

21. Contact BO from FAB
    a. Report Casualty turned over to F/A — 0 – 5 _____
    b. Report Toyota is no longer available — 0 – 3 _____
    c. Time Limit — 0 – 2 _____
    d. Destination — 0 – 2 _____
    e. Team Status — 0 – 10 _____

22. Travel to Truck location via Ramp Portal — 0 – 5 _____

23. Ensure Truck is safe to pass
    a. Wheel Chocks — 0 – 5 5
    b. Master Switch — 0 – 5 0

24. Proceed to 3930 Sill Ore pass — 0 – 5 5

25. Contact BO
    a. Report Conditions — 0 – 3 3
    b. Time Limit to Build wall — 0 – 2 2
    c. Report Increase in Temperature — 0 – 3 0
    d. Team Status — 0 – 10 10

26. Fabricate Wall
    a. Wall Completed within Time limit (20 min) — 0 – 20 15
    b. Construction materials used are sufficient — 0 – 10 5
    c. Construction Method Sufficient — 0 – 10 5
    d. Construction work evenly shared — 0 – 10 10

50

U/G SCENARIO

27. Contact BO

a. Report Conditions	0 – 3	3
b. Report Status of Wall	0 – 5	5
c. Time Limit	0 – 2	0
d. Destination	0 – 2	2
e. Team Status	0 – 10	0

28. Travel to 150 L Refuge Station — 0 – 5: 5

29. Contact Construction Miner

a. Perform verbal Primary	0 – 5	0
b. Obtain info about his partner	0 – 5	5
c. Place miner in a safe location (ie Refuge Station)	0 – 10	Ø

30. Contact BO

a. Report Conditions	0 – 3	0
b. Report Status of Construction Miner	0 – 5	0
c. Time Limit	0 – 2	0
d. Destination	0 – 2	0
e. Team Status	0 – 10	0

31. Travel to RV ramp via 4210 Spur X-over — 0 – 5: 5

32. Locate Injured Construction miner at DS7 — 0 – 20: 20

45

U/G SCENARIO

33. Contact BO via Radio
    a. Report Construction Miner located 0 – 5 5
    b. Report Conditions 0 – 3 3
    c. Time Limit 0 – 2 02
    d. Destination 0 – 2 2
    e. Team Status 0 – 10 0

34. Ensure Scoop is safe
    a. Wheel Chocks 0 – 5 0
    b. Master Switch 0 – 5 0

35. Perform First Aid (Primary)
    f. Airway 0 – 3 3
    g. Breathing 0 – 3 3
    h. Circulation 0 – 3 3
    i. Gross Bleed Check 0 – 3 0

36. Apply oxygen to casualty 0 – 5 0

37. Identify as Load and Go 0 – 18 9

OR

38. Perform First Aid (Secondary)
    j. Check head, eyes, ears 0 – 2
    k. Check neck and throat 0 – 2
    l. Check arms (left and right) 0 – 4
    m. Check Torso (front and Sides) 0 – 2
    n. Check Pelvis 0 – 2

U/G SCENARIO

o. Check Legs and Feet (left and right) 0 – 4 _____
p. Check Back 0 – 2 _____

39. First Aid Treatment
c. Put on medical gloves 0 – 5 2
d. Support Casualty in position found 0 – 20 10
e. Control bleeding 0 – 10 7
f. Support Embedded object in position found 0 – 5 1

40. Locate rescue tools (eDraulics) 0 – 10 0

41. Ensure tools are safe to use 0 – 5 0

42. Cut Casualty Free 0 – 10 10

----------Once Casualty is cut free----------

g. Place casualty on their side in the basket 0 – 20 0
h. Recheck vitals 0 – 5 0
i. Evacuate casualty to surface 0 – 20 20

50

U/G SCENARIO

43. Contact BO
    a. Report Casualty turned over to F/A 0 – 5 5
    b. Time Limit 0 – 2 0
    c. Destination 0 – 2 0
    d. Team Status 0 – 10 10

44. Get Team out of O_2 0 – 10 10

Miscellaneous:

Demerit:

Extreme unsafe action: Max (-25)_____

Extreme poor casualty Care: Max (-20 per casualty)_____

Damage to Mine Rescue Equipment: Max (-5 per item)_____

25

U/G SCENARIO

U/G SCENARIO

Team Number	Tuesday August 23rd, 2016	
1	Canada 2	Vale Manitoba Operations
2	Canada 2	Sudbury Basin Cobras, KGHM
3	Canada 2	Vale Sudbury West Mines
4	USA	MSHA Mine Emergency Unit No.1
	--- Break ---	--- Break ---
5	Russia	EMERCOM
6	Russia	JSC SUEK
7	India	Singareni
8	India	Coal India Ltd.
9	Vietnam	Vinacomin
10	Slovakia	HBP
11	Australia	Peabody Energy Wambo Coal
12	Multinational	Goldcorp Americas
13	Canada 1	Agnico Eagle Goldex Mine
	--- Break ---	--- Break ---
14	Canada 1	Compass Minerals Goderich Mine
15	Canada 1	Cameco McArthur River
16	Canada 1	Kirkland Lake Gold
17	Columbia	Colombia Coal Company
18	Columbia	Fiebre del Oro (Gold Fever)
19	Ukraine	State Militarized Mine Rescue Squad
20	China	Guizhou Yonggui Energy Company
21	China	China Pingmei Senma Group
22	China	Shaanxi Coal and Chemical Group
	--- Break ---	--- Break ---
23	Poland	Bytom Weglokoks
24	Poland	Scorpions Team Katowice
25	Poland	Gray Wolfs
26	Poland	KGHM White Eagles
27	Ireland	Boliden Tara Mines

U/G SCENARIO

TEAM: 9

Time Under O_2 _____ **Time Casualty at F/A** _____

MERITS

1. *Team to be briefed by Briefing Officer* 0 – 5 _____
   - a. *Information Available* 0 – 2 _____
   - b. *Missing People Underground* 0 – 2 _____
   - c. *Actions Taken So far* 0 – 2 _____
   - d. *Team Assignment* 0 – 2 _____
   - e. *Route of travel* 0 – 2 _____
   - f. *Reserve Mine Rescue Teams* 0 – 2 _____
   - g. *Expected Conditions* 0 – 2 _____
   - h. *Mine Rescue Equipment available* 0 – 2 _____
   - i. *Transportation available* 0 – 2 _____
   - j. *Location of First aid* 0 – 2 _____
   - k. *Communication Method* 0 – 2 _____
   - l. *Synchronize Watches* 0 – 2 _____
   - m. *Establish Time Limits* 0 – 2 _____

2. Prepare Emergency equipment to be used underground
   - a. Gas checking equipment 0 – 3 _____
   - b. First Aid Supplies 0 – 3 _____
   - c. Back up apparatus for team 0 – 5 _____
   - d. Maps, note pad 0 – 5 _____
   - e. Basket/Backboard 0 – 3 _____
   - f. Casualty Breathing Apparatus 0 – 5 _____
   - g. Firefighting equipment 0 – 5 _____

U/G SCENARIO

3. Prepare team breathing apparatuses
   a. Perform high pressure leak test 0 – 10 _____
   b. Install Ice 0 – 5 _____
   c. Anti fog mask 0 – 5 _____

4. Team under oxygen outside of Fresh Air Base 0 – 10 _____

5. Verify breathing apparatus is functioning properly 0 – 10 _____

6. Ensure Toyota operator is wearing breathing apparatus 0 – 5 _____

7. Contact BO
   a. Time Limit 0 – 2 _____
   b. Destination 0 – 2 _____
   c. Time Team under 0_2 0 – 2 _____

8. Board Toyota in a safe manner 0 – 5 _____

9. Enter mine via Portal 0 – 5 _____

10. Stop inside of portal 0 – 5 _____

U/G SCENARIO

11. Evaluate Conditions

a. Smoke 0 – 2 _____
b. CO 0 – 2 _____
c. Radio 0 – 2 _____

12. Perform Team Check

d. BG4 functioning 0 – 5 _____
e. Team OK 0 – 5 _____
f. Record info 0 – 5 _____

13. Contact BO via radio

a. Report Conditions 0 – 3 _____
b. Team Status 0 – 2 _____

14. Proceed down ramp via Toyota 0 - 5 _____

15. Locate unconscious Truck Operator 0 - 20 18
TOO MUCH TIME TO DECIDE TO GO.

16. Contact BO via Radio

a. Report Truck operator located 0 – 5 5
b. Report Conditions 0 – 3 3
c. Time Limit 0 – 2 ?
d. Destination 0 – 2 ?
e. Team Status 0 – 10 ?

CHECK WITH B.O.
SCORE SHEET

U/G SCENARIO

17. Perform First Aid (Primary)
    a. Airway 0 – 3 0
    b. Breathing 0 – 3 0
    c. Circulation 0 – 3 0
    d. Gross Bleed Check 0 – 3 3

18. Protect Casualty from further contamination 0 – 5 5

19. Identify as Load and Go 0 – 18 N.L

OR

Perform First Aid (Secondary)
    a. Check head, eyes, ears 0 – 2 0
    b. Check neck and throat 0 – 2 0
    c. Check arms (left and right) 0 – 4 4
    d. Check Torso (front and Sides) 0 – 2 0
    e. Check Pelvis 0 – 2 0
    f. Check Legs and Feet (left and right) 0 – 4 4
    g. Check Back 0 – 2 0

19. Load casualty into stretcher 0 – 10 4
THEM GUYS IS FALLING THE BACK BOARD
THEY NEED HELP TO FINISH THE JOB

20. Transport Casualty to First Aid (surface) 0 – 10 5
DROPPED.

U/G SCENARIO

21. Contact BO from FAB
    a. Report Casualty turned over to F/A 0 – 5 _____
    b. Report Toyota is no longer available 0 – 3 _____
    c. Time Limit 0 – 2 _____
    d. Destination 0 – 2 _____
    e. Team Status 0 – 10 _____

22. Travel to Truck location via Ramp Portal 0 – 5 _____

23. Ensure Truck is safe to pass
    a. Wheel Chocks 0 – 5 5
    b. Master Switch 0 – 5 0

24. Proceed to 3930 Sill Ore pass 0 – 5 _____

25. Contact BO
    a. Report Conditions 0 – 3 _____
    b. Time Limit to Build wall 0 – 2 _____
    c. Report Increase in Temperature 0 – 3 _____
    d. Team Status 0 – 10 _____

26. Fabricate Wall
    a. Wall Completed within Time limit (20 min) 0 – 20 _____
    b. Construction materials used are sufficient 0 – 10 _____
    c. Construction Method Sufficient 0 – 10 _____
    d. Construction work evenly shared 0 – 10 _____

27. Contact BO
    a. Report Conditions 0 – 3 _____
    b. Report Status of Wall 0 – 5 _____
    c. Time Limit 0 – 2 _____
    d. Destination 0 – 2 _____
    e. Team Status 0 – 10 _____

28. Travel to 150 L Refuge Station 0 – 5 _____

29. Contact Construction Miner
    a. Perform verbal Primary 0 – 5 _____
    b. Obtain info about his partner 0 – 5 _____
    c. Place miner in a safe location (ie Refuge Station) 0 – 10 _____

30. Contact BO
    a. Report Conditions 0 – 3 _____
    b. Report Status of Construction Miner 0 – 5 _____
    c. Time Limit 0 – 2 _____
    d. Destination 0 – 2 _____
    e. Team Status 0 – 10 _____

31. Travel to RV ramp via 4210 Spur X-over 0 – 5 _____

32. Locate Injured Construction miner at DS7 0 – 20 _____

U/G SCENARIO

33. Contact BO via Radio
    a. Report Construction Miner located 0 – 5 _____
    b. Report Conditions 0 – 3 _____
    c. Time Limit 0 – 2 _____
    d. Destination 0 – 2 _____
    e. Team Status 0 – 10 _____

34. Ensure Scoop is safe
    a. Wheel Chocks 0 – 5 _____
    b. Master Switch 0 – 5 _____

35. Perform First Aid (Primary)
    f. Airway 0 – 3 _____
    g. Breathing 0 – 3 _____
    h. Circulation 0 – 3 _____
    i. Gross Bleed Check 0 – 3 _____

36. Apply oxygen to casualty 0 – 5 _____

37. Identify as Load and Go 0 – 18 _____

OR

38. Perform First Aid (Secondary)
    j. Check head, eyes, ears 0 – 2 _____
    k. Check neck and throat 0 – 2 _____
    l. Check arms (left and right) 0 – 4 _____
    m. Check Torso (front and Sides) 0 – 2 _____
    n. Check Pelvis 0 – 2 _____

o. Check Legs and Feet (left and right) 0 – 4 _____
p. Check Back 0 – 2 _____

39. First Aid Treatment
c. Put on medical gloves 0 – 5 _____
d. Support Casualty in position found 0 – 20 _____
e. Control bleeding 0 – 10 _____
f. Support Embedded object in position found 0 – 5 _____

40. Locate rescue tools (eDraulics) 0 – 10 _____

41. Ensure tools are safe to use 0 – 5 _____

42. Cut Casualty Free 0 – 10 _____

----------Once Casualty is cut free----------

g. Place casualty on their side in the basket 0 – 20 _____
h. Recheck vitals 0 – 5 _____
i. Evacuate casualty to surface 0 – 20 _____

U/G SCENARIO

43. Contact BO
    a. Report Casualty turned over to F/A 0 – 5 _____
    b. Time Limit 0 – 2 _____
    c. Destination 0 – 2 _____
    d. Team Status 0 – 10 _____

44. Get Team out of O_2 0 – 10 _____

Miscellaneous:

Demerit:

Extreme unsafe action: Max (-25)_____

Extreme poor casualty Care: Max (-20 per casualty)_____

Damage to Mine Rescue Equipment: Max (-5 per item)_____

U/G SCENARIO

U/G SCENARIO

Team Number	Tuesday August 23rd, 2016	
1	Canada 2	Vale Manitoba Operations
2	Canada 2	Sudbury Basin Cobras, KGHM
3	Canada 2	Vale Sudbury West Mines
4	USA	MSHA Mine Emergency Unit No.1
	— Break —	— Break —
5	Russia	EMERCOM
6	Russia	JSC SUEK
7	India	Singareni
8	India	Coal India Ltd.
9	Vietnam	Vinacomin
10	Slovakia	HBP
11	Australia	Peabody Energy Wambo Coal
12	Multinational	Goldcorp Americas
13	Canada 1	Agnico Eagle Goldex Mine
	— Break —	— Break —
14	Canada 1	Compass Minerals Goderich Mine
15	Canada 1	Cameco McArthur River
16	Canada 1	Kirkland Lake Gold
17	Columbia	Colombia Coal Company
18	Columbia	Fiebre del Oro (Gold Fever)
19	Ukraine	State Militarized Mine Rescue Squad
20	China	Guizhou Yonggui Energy Company
21	China	China Pingmei Senma Group
22	China	Shaanxi Coal and Chemical Group
	— Break —	— Break —
23	Poland	Bytom Weglokoks
24	Poland	Scorpions Team Katowice
25	Poland	Gray Wolfs
26	Poland	KGHM White Eagles
27	Ireland	Boliden Tara Mines

U/G SCENARIO

TEAM: _____

Time Under O_2 _____ **Time Casualty at F/A** _____

MERITS

1. *Team to be briefed by Briefing Officer* *0 – 5* _____
   - a. *Information Available* *0 – 2* _____
   - b. *Missing People Underground* *0 – 2* _____
   - c. *Actions Taken So far* *0 – 2* _____
   - d. *Team Assignment* *0 – 2* _____
   - e. *Route of travel* *0 – 2* _____
   - f. *Reserve Mine Rescue Teams* *0 – 2* _____
   - g. *Expected Conditions* *0 – 2* _____
   - h. *Mine Rescue Equipment available* *0 – 2* _____
   - i. *Transportation available* *0 – 2* _____
   - j. *Location of First aid* *0 – 2* _____
   - k. *Communication Method* *0 – 2* _____
   - l. *Synchronize Watches* *0 – 2* _____
   - m. *Establish Time Limits* *0 – 2* _____

_____

_____

_____

2. Prepare Emergency equipment to be used underground
   - a. Gas checking equipment 0 – 3 _____
   - b. First Aid Supplies 0 – 3 _____
   - c. Back up apparatus for team 0 – 5 _____
   - d. Maps, note pad 0 – 5 _____
   - e. Basket/Backboard 0 – 3 _____
   - f. Casualty Breathing Apparatus 0 – 5 _____
   - g. Firefighting equipment 0 – 5 _____

_____

_____

_____

_____

U/G SCENARIO

3. Prepare team breathing apparatuses
   a. Perform high pressure leak test 0 – 10 _____
   b. Install Ice 0 – 5 _____
   c. Anti fog mask 0 – 5 _____

4. Team under oxygen outside of Fresh Air Base 0 – 10 _____

5. Verify breathing apparatus is functioning properly 0 – 10 _____

6. Ensure Toyota operator is wearing breathing apparatus 0 – 5 _____

7. Contact BO
   a. Time Limit 0 – 2 _____
   b. Destination 0 – 2 _____
   c. Time Team under O_2 0 – 2 _____

8. Board Toyota in a safe manner 0 – 5 _____

9. Enter mine via Portal 0 – 5 _____

10. Stop inside of portal 0 – 5 _____

U/G SCENARIO

11. Evaluate Conditions

a.	Smoke	0 – 2 _____
b.	CO	0 – 2 _____
c.	Radio	0 – 2 _____

12. Perform Team Check

d.	BG4 functioning	0 – 5 _____
e.	Team OK	0 – 5 _____
f.	Record info	0 – 5 _____

13. Contact BO via radio

a.	Report Conditions	0 – 3 _____
b.	Team Status	0 – 2 _____

14. Proceed down ramp via Toyota 0 - 5 _____

15. Locate unconscious Truck Operator 0 - 20 _____

16. Contact BO via Radio

a.	Report Truck operator located	0 – 5 _____
b.	Report Conditions	0 – 3 _____
c.	Time Limit	0 – 2 _____
d.	Destination	0 – 2 _____
e.	Team Status	0 – 10 _____

U/G SCENARIO

17. Perform First Aid (Primary)
    a. Airway 0 – 3 _____
    b. Breathing 0 – 3 _____
    c. Circulation 0 – 3 _____
    d. Gross Bleed Check 0 – 3 _____

18. Protect Casualty from further contamination 0 – 5 _____

19. Identify as Load and Go 0 – 18 _____

OR

Perform First Aid (Secondary)
    a. Check head, eyes, ears 0 – 2 _____
    b. Check neck and throat 0 – 2 _____
    c. Check arms (left and right) 0 – 4 _____
    d. Check Torso (front and Sides) 0 – 2 _____
    e. Check Pelvis 0 – 2 _____
    f. Check Legs and Feet (left and right) 0 – 4 _____
    g. Check Back 0 – 2 _____

19. Load casualty into stretcher 0 – 10 _____

20. Transport Casualty to First Aid (surface) 0 – 10 _____

U/G SCENARIO

21. Contact BO from FAB
    a. Report Casualty turned over to F/A 0 – 5 _____
    b. Report Toyota is no longer available 0 – 3 _____
    c. Time Limit 0 – 2 _____
    d. Destination 0 – 2 _____
    e. Team Status 0 – 10 _____

22. Travel to Truck location via Ramp Portal 0 – 5 _____

23. Ensure Truck is safe to pass
    a. Wheel Chocks 0 – 5 _____
    b. Master Switch 0 – 5 _____

24. Proceed to 3930 Sill Ore pass 0 – 5 _____

25. Contact BO
    a. Report Conditions 0 – 3 3
    b. Time Limit to Build wall 0 – 2 0
    c. Report Increase in Temperature 0 – 3 3
    d. Team Status 0 – 10 0

1:06 Rest no Oct.

26. Fabricate Wall
    a. Wall Completed within Time limit (20 min) No gap at top. 0 – 20 15
    b. Construction materials used are sufficient 0 – 10 5
    c. Construction Method Sufficient 0.03 ohms o/c. 0 – 10 3
    d. Construction work evenly shared 0 – 10 10

Release From Inside

U/G SCENARIO

27. Contact BO
    a. Report Conditions 0 – 3 3
    b. Report Status of Wall 0 – 5 5
    c. Time Limit 0 – 2 0
    d. Destination WRONG ONE - SURF. 0 – 2 2
    e. Team Status 0 – 10 Ø

28. Travel to 150 L Refuge Station 0 – 5 _____

29. Contact Construction Miner
    a. Perform verbal Primary 0 – 5 _____
    b. Obtain info about his partner 0 – 5 _____
    c. Place miner in a safe location (ie Refuge Station) 0 – 10 _____

30. Contact BO
    a. Report Conditions 0 – 3 _____
    b. Report Status of Construction Miner 0 – 5 _____
    c. Time Limit 0 – 2 _____
    d. Destination 0 – 2 _____
    e. Team Status 0 – 10 _____

31. Travel to RV ramp via 4210 Spur X-over 0 – 5 _____

32. Locate Injured Construction miner at DS7 0 – 20 _____

U/G SCENARIO

33. Contact BO via Radio
    a. Report Construction Miner located 0 – 5 _____
    b. Report Conditions 0 – 3 _____
    c. Time Limit 0 – 2 _____
    d. Destination 0 – 2 _____
    e. Team Status 0 – 10 _____

34. Ensure Scoop is safe
    a. Wheel Chocks 0 – 5 _____
    b. Master Switch 0 – 5 _____

35. Perform First Aid (Primary)
    f. Airway 0 – 3 _____
    g. Breathing 0 – 3 _____
    h. Circulation 0 – 3 _____
    i. Gross Bleed Check 0 – 3 _____

36. Apply oxygen to casualty 0 – 5 _____

37. Identify as Load and Go 0 – 18 _____

OR

38. Perform First Aid (Secondary)
    j. Check head, eyes, ears 0 – 2 _____
    k. Check neck and throat 0 – 2 _____
    l. Check arms (left and right) 0 – 4 _____
    m. Check Torso (front and Sides) 0 – 2 _____
    n. Check Pelvis 0 – 2 _____

o. Check Legs and Feet (left and right) 0 – 4 _____
p. Check Back 0 – 2 _____

39. First Aid Treatment
c. Put on medical gloves 0 – 5 _____
d. Support Casualty in position found 0 – 20 _____
e. Control bleeding 0 – 10 _____
f. Support Embedded object in position found 0 – 5 _____

40. Locate rescue tools (eDraulics) 0 – 10 _____

41. Ensure tools are safe to use 0 – 5 _____

42. Cut Casualty Free 0 – 10 _____

----------Once Casualty is cut free----------

g. Place casualty on their side in the basket 0 – 20 _____
h. Recheck vitals 0 – 5 _____
i. Evacuate casualty to surface 0 – 20 _____

U/G SCENARIO

43. Contact BO
    a. Report Casualty turned over to F/A 0 – 5 _____
    b. Time Limit 0 – 2 _____
    c. Destination 0 – 2 _____
    d. Team Status 0 – 10 _____

44. Get Team out of O_2 0 – 10 _____

Miscellaneous:

Demerit:

Extreme unsafe action: Max (-25)_____

Extreme poor casualty Care: Max (-20 per casualty)_____

Damage to Mine Rescue Equipment: Max (-5 per item)_____

U/G SCENARIO

U/G SCENARIO

Team Number	Tuesday August 23rd, 2016	
1	Canada 2	Vale Manitoba Operations
2	Canada 2	Sudbury Basin Cobras, KGHM
3	Canada 2	Vale Sudbury West Mines
4	USA	MSHA Mine Emergency Unit No.1
	— Break —	— Break —
5	Russia	EMERCOM
6	Russia	JSC SUEK
7	India	Singareni
8	India	Coal India Ltd.
9	Vietnam	Vinacomin
10	Slovakia	HBP
11	Australia	Peabody Energy Wambo Coal
12	Multinational	Goldcorp Americas
13	Canada 1	Agnico Eagle Goldex Mine
	— Break —	— Break —
14	Canada 1	Compass Minerals Goderich Mine
15	Canada 1	Cameco McArthur River
16	Canada 1	Kirkland Lake Gold
17	Columbia	Colombia Coal Company
18	Columbia	Fiebre del Oro (Gold Fever)
19	Ukraine	State Militarized Mine Rescue Squad
20	China	Guizhou Yonggui Energy Company
21	China	China Pingmei Senma Group
22	China	Shaanxi Coal and Chemical Group
	— Break —	— Break —
23	Poland	Bytom Weglokoks
24	Poland	Scorpions Team Katowice
25	Poland	Gray Wolfs
26	Poland	KGHM White Eagles
27	Ireland	Boliden Tara Mines

U/G SCENARIO
#9

TEAM: Vietnam.

Time Under O_2 _____ **Time Casualty at F/A** _____

MERITS

1. *Team to be briefed by Briefing Officer* 0 – 5 _____
   - a. *Information Available* 0 – 2 _____
   - b. *Missing People Underground* 0 – 2 _____
   - c. *Actions Taken So far* 0 – 2 _____
   - d. *Team Assignment* 0 – 2 _____
   - e. *Route of travel* 0 – 2 _____
   - f. *Reserve Mine Rescue Teams* 0 – 2 _____
   - g. *Expected Conditions* 0 – 2 _____
   - h. *Mine Rescue Equipment available* 0 – 2 _____
   - i. *Transportation available* 0 – 2 _____
   - j. *Location of First aid* 0 – 2 _____
   - k. *Communication Method* 0 – 2 _____
   - l. *Synchronize Watches* 0 – 2 _____
   - m. *Establish Time Limits* 0 – 2 _____

2. Prepare Emergency equipment to be used underground
   - a. Gas checking equipment 0 – 3 _____
   - b. First Aid Supplies 0 – 3 _____
   - c. Back up apparatus for team 0 – 5 _____
   - d. Maps, note pad 0 – 5 _____
   - e. Basket/Backboard 0 – 3 _____
   - f. Casualty Breathing Apparatus 0 – 5 _____
   - g. Firefighting equipment 0 – 5 _____

U/G SCENARIO

3. Prepare team breathing apparatuses
   a. Perform high pressure leak test 0 – 10 _____
   b. Install Ice 0 – 5 _____
   c. Anti fog mask 0 – 5 _____

4. Team under oxygen outside of Fresh Air Base 0 – 10 _____

5. Verify breathing apparatus is functioning properly 0 – 10 _____

6. Ensure Toyota operator is wearing breathing apparatus 0 – 5 _____

7. Contact BO
   a. Time Limit 0 – 2 _____
   b. Destination 0 – 2 _____
   c. Time Team under O_2 0 – 2 _____

8. Board Toyota in a safe manner 0 – 5 _____

9. Enter mine via Portal 0 – 5 _____

10. Stop inside of portal 0 – 5 _____

U/G SCENARIO

11. Evaluate Conditions

a.	Smoke	0 – 2 _____
b.	CO	0 – 2 _____
c.	Radio	0 – 2 _____

12. Perform Team Check

d.	BG4 functioning	0 – 5 _____
e.	Team OK	0 – 5 _____
f.	Record info	0 – 5 _____

13. Contact BO via radio

a.	Report Conditions	0 – 3 _____
b.	Team Status	0 – 2 _____

14. Proceed down ramp via Toyota 0 - 5 _____

15. Locate unconscious Truck Operator 0 - 20 _____

16. Contact BO via Radio

a.	Report Truck operator located	0 – 5 _____
b.	Report Conditions	0 – 3 _____
c.	Time Limit	0 – 2 _____
d.	Destination	0 – 2 _____
e.	Team Status	0 – 10 _____

U/G SCENARIO

17. Perform First Aid (Primary)
    a. Airway 0 – 3 _____
    b. Breathing 0 – 3 _____
    c. Circulation 0 – 3 _____
    d. Gross Bleed Check 0 – 3 _____

18. Protect Casualty from further contamination 0 – 5 _____

19. Identify as Load and Go 0 – 18 _____

OR

Perform First Aid (Secondary)
    a. Check head, eyes, ears 0 – 2 _____
    b. Check neck and throat 0 – 2 _____
    c. Check arms (left and right) 0 – 4 _____
    d. Check Torso (front and Sides) 0 – 2 _____
    e. Check Pelvis 0 – 2 _____
    f. Check Legs and Feet (left and right) 0 – 4 _____
    g. Check Back 0 – 2 _____

19. Load casualty into stretcher 0 – 10 _____

20. Transport Casualty to First Aid (surface) 0 – 10 _____

U/G SCENARIO

21. Contact BO from FAB
    a. Report Casualty turned over to F/A 0 – 5 _____
    b. Report Toyota is no longer available 0 – 3 _____
    c. Time Limit 0 – 2 _____
    d. Destination 0 – 2 _____
    e. Team Status 0 – 10 _____

22. Travel to Truck location via Ramp Portal 0 – 5 _____

23. Ensure Truck is safe to pass
    a. Wheel Chocks 0 – 5 _____
    b. Master Switch 0 – 5 _____

24. Proceed to 3930 Sill Ore pass 0 – 5 _____

25. Contact BO
    a. Report Conditions 0 – 3 3
    b. Time Limit to Build wall 0 – 2 0
    c. Report Increase in Temperature 0 – 3 3
    d. Team Status 0 – 10 6

26. Fabricate Wall
    a. Wall Completed within Time limit (20 min) 0 – 20 15
    b. Construction materials used are sufficient 0 – 10 5
    c. Construction Method Sufficient 0 – 10 5
    d. Construction work ~~evenly~~ shared 0 – 10 10

Wall not complete opening at top.

U/G SCENARIO

27. Contact BO
    a. Report Conditions 0 – 3 3
    b. Report Status of Wall 0 – 5 5
    c. Time Limit 0 – 2 0
    d. Destination 0 – 2 ~~2~~ 0
    e. Team Status 0 – 10 0

Wrong Destination - surface.

28. Travel to 150 L Refuge Station 0 – 5 _____

29. Contact Construction Miner
    a. Perform verbal Primary 0 – 5 _____
    b. Obtain info about his partner 0 – 5 _____
    c. Place miner in a safe location (ie Refuge Station) 0 – 10 _____

30. Contact BO
    a. Report Conditions 0 – 3 _____
    b. Report Status of Construction Miner 0 – 5 _____
    c. Time Limit 0 – 2 _____
    d. Destination 0 – 2 _____
    e. Team Status 0 – 10 _____

31. Travel to RV ramp via 4210 Spur X-over 0 – 5 _____

32. Locate Injured Construction miner at DS7 0 – 20 _____

U/G SCENARIO

33. Contact BO via Radio
    a. Report Construction Miner located 0 – 5 _____
    b. Report Conditions 0 – 3 _____
    c. Time Limit 0 – 2 _____
    d. Destination 0 – 2 _____
    e. Team Status 0 – 10 _____

34. Ensure Scoop is safe
    a. Wheel Chocks 0 – 5 _____
    b. Master Switch 0 – 5 _____

35. Perform First Aid (Primary)
    f. Airway 0 – 3 _____
    g. Breathing 0 – 3 _____
    h. Circulation 0 – 3 _____
    i. Gross Bleed Check 0 – 3 _____

36. Apply oxygen to casualty 0 – 5 _____

37. Identify as Load and Go 0 – 18 _____

OR

38. Perform First Aid (Secondary)
    j. Check head, eyes, ears 0 – 2 _____
    k. Check neck and throat 0 – 2 _____
    l. Check arms (left and right) 0 – 4 _____
    m. Check Torso (front and Sides) 0 – 2 _____
    n. Check Pelvis 0 – 2 _____

o. Check Legs and Feet (left and right) 0 – 4 _____
p. Check Back 0 – 2 _____

39. First Aid Treatment
c. Put on medical gloves 0 – 5 _____
d. Support Casualty in position found 0 – 20 _____
e. Control bleeding 0 – 10 _____
f. Support Embedded object in position found 0 – 5 _____

40. Locate rescue tools (eDraulics) 0 – 10 _____

41. Ensure tools are safe to use 0 – 5 _____

42. Cut Casualty Free 0 – 10 _____

----------Once Casualty is cut free----------

g. Place casualty on their side in the basket 0 – 20 _____
h. Recheck vitals 0 – 5 _____
i. Evacuate casualty to surface 0 – 20 _____

U/G SCENARIO

43. Contact BO
    a. Report Casualty turned over to F/A 0 – 5 _____
    b. Time Limit 0 – 2 _____
    c. Destination 0 – 2 _____
    d. Team Status 0 – 10 _____

44. Get Team out of O_2 0 – 10 _____

Miscellaneous:

Demerit:

Extreme unsafe action: Max (-25)_____

Extreme poor casualty Care: Max (-20 per casualty)_____

Damage to Mine Rescue Equipment: Max (-5 per item)_____

U/G SCENARIO

U/G SCENARIO

Team Number	Tuesday August 23rd, 2016	
1	Canada 2	Vale Manitoba Operations
2	Canada 2	Sudbury Basin Cobras, KGHM
3	Canada 2	Vale Sudbury West Mines
4	USA	MSHA Mine Emergency Unit No.1
	— Break —	— Break —
5	Russia	EMERCOM
6	Russia	JSC SUEK
7	India	Singareni
8	India	Coal India Ltd.
9	Vietnam	Vinacomin
10	Slovakia	HBP
11	Australia	Peabody Energy Wambo Coal
12	Multinational	Goldcorp Americas
13	Canada 1	Agnico Eagle Goldex Mine
	— Break —	— Break —
14	Canada 1	Compass Minerals Goderich Mine
15	Canada 1	Cameco McArthur River
16	Canada 1	Kirkland Lake Gold
17	Columbia	Colombia Coal Company
18	Columbia	Fiebre del Oro (Gold Fever)
19	Ukraine	State Militarized Mine Rescue Squad
20	China	Guizhou Yonggui Energy Company
21	China	China Pingmei Senma Group
22	China	Shaanxi Coal and Chemical Group
	— Break —	— Break —
23	Poland	Bytom Weglokoks
24	Poland	Scorpions Team Katowice
25	Poland	Gray Wolfs
26	Poland	KGHM White Eagles
27	Ireland	Boliden Tara Mines

U/G SCENARIO

TERRY DUBOIS.

TEAM: #9 VIETNAM VMACom, NJ

Time Under O_2 _____ **Time Casualty at F/A** _____

MERITS

1. *Team to be briefed by Briefing Officer* 0 – 5 ✓
   - a. *Information Available* 0 – 2 _____
   - b. *Missing People Underground* 0 – 2 _____
   - c. *Actions Taken So far* 0 – 2 _____
   - d. *Team Assignment* 0 – 2 ✓
   - e. *Route of travel* 0 – 2 ✓
   - f. *Reserve Mine Rescue Teams* 0 – 2 _____
   - g. *Expected Conditions* 0 – 2 _____
   - h. *Mine Rescue Equipment available* 0 – 2 _____
   - i. *Transportation available* 0 – 2 _____
   - j. *Location of First aid* 0 – 2 _____
   - k. *Communication Method* 0 – 2 _____
   - l. *Synchronize Watches* 0 – 2 _____
   - m. *Establish Time Limits* 0 – 2 _____

2. Prepare Emergency equipment to be used underground
   - a. Gas checking equipment 0 – 3 _____
   - b. First Aid Supplies 0 – 3 _____
   - c. Back up apparatus for team 0 – 5 _____
   - d. Maps, note pad 0 – 5 _____
   - e. Basket/Backboard 0 – 3 _____
   - f. Casualty Breathing Apparatus 0 – 5 _____
   - g. Firefighting equipment 0 – 5 _____

U/G SCENARIO

3. Prepare team breathing apparatuses
   a. Perform high pressure leak test 0 – 10 _____
   b. Install Ice 0 – 5 _____
   c. Anti fog mask 0 – 5 _____

4. Team under oxygen outside of Fresh Air Base 0 – 10 ✓

5. Verify breathing apparatus is functioning properly 0 – 10 _____

6. Ensure Toyota operator is wearing breathing apparatus 0 – 5 _____

7. Contact BO
   a. Time Limit 0 – 2 _____
   b. Destination 0 – 2 _____
   c. Time Team under 0_2 0 – 2 _____

8. Board Toyota in a safe manner 0 – 5 _____

9. Enter mine via Portal 0 – 5 _____

10. Stop inside of portal 0 – 5 _____

U/G SCENARIO

11. Evaluate Conditions

a. Smoke 0 – 2 _____
b. CO 0 – 2 _____
c. Radio 0 – 2 _____

12. Perform Team Check

d. BG4 functioning 0 – 5 _____
e. Team OK 0 – 5 _____
f. Record info 0 – 5 _____

13. Contact BO via radio

a. Report Conditions 0 – 3 _____
b. Team Status 0 – 2 _____

14. Proceed down ramp via Toyota 0 - 5 ✓

15. Locate unconscious Truck Operator 0 - 20 ✓

16. Contact BO via Radio

a. Report Truck operator located 0 – 5 ✓
b. Report Conditions CO Ø No Smoke O2 20.9 0 – 3 ✓
c. Time Limit 0 – 2 _____
d. Destination 0 – 2 _____
e. Team Status 0 – 10 _____

U/G SCENARIO

17. Perform First Aid (Primary)
    a. Airway 0 – 3 _____
    b. Breathing 0 – 3 _____
    c. Circulation 0 – 3 _____
    d. Gross Bleed Check 0 – 3 _____

18. Protect Casualty from further contamination 0 – 5 _____

19. Identify as Load and Go 0 – 18 _____

OR

Perform First Aid (Secondary)
    a. Check head, eyes, ears 0 – 2 _____
    b. Check neck and throat 0 – 2 _____
    c. Check arms (left and right) 0 – 4 _____
    d. Check Torso (front and Sides) 0 – 2 _____
    e. Check Pelvis 0 – 2 _____
    f. Check Legs and Feet (left and right) 0 – 4 _____
    g. Check Back 0 – 2 _____

19. Load casualty into stretcher 0 – 10 _____

20. Transport Casualty to First Aid (surface) 0 – 10 ✓

U/G SCENARIO

21. Contact BO from FAB
    a. Report Casualty turned over to F/A 0 – 5 _____
    b. Report Toyota is no longer available 0 – 3 _____
    c. Time Limit 0 – 2 _____
    d. Destination 0 – 2 _____
    e. Team Status 0 – 10 _____

22. Travel to Truck location via Ramp Portal 0 – 5 _____

23. Ensure Truck is safe to pass
    a. Wheel Chocks 0 – 5 _____
    b. Master Switch 0 – 5 _____

24. Proceed to 3930 Sill Ore pass 0 – 5 ✓
    TIME OUT FOR RADIO'S (COMMUNICATIONS) X2.
    BO ASKED CONDITION OF RDWY

25. Contact BO
    a. Report Conditions 0 – 3 ✓
    b. Time Limit to Build wall QUICKLY 0 – 2 ✓
    c. Report Increase in Temperature 0 – 3 ✓
    d. Team Status 0 – 10 ✓
    BO REQUESTED CYL PRESSURES & TEAM CONDITIONS
    BO INSTRUCTED TEAM TO GET MATERIAL TO BUILD BARRICADE, BO TOLD CAPTAIN TO CHECK TEAM CONDITION.

26. Fabricate Wall
    a. Wall Completed within Time limit (20 min) 0 – 20 _____
    b. Construction materials used are sufficient 0 – 10 _____
    c. Construction Method Sufficient 0 – 10 _____
    d. Construction work evenly shared 0 – 10 _____

~~KIBO~~ 187
-33
187

U/G SCENARIO

27. Contact BO
    a. Report Conditions 0 – 3 ✓
    b. Report Status of Wall BO ASKED 1/3 0 – 5 ✓
    c. Time Limit 0 – 2 _____
    d. Destination 0 – 2 _____
    e. Team Status 0 – 10 ✓

BO REQUESTED TEAM STATUS, BO WATCHING MONITOR FOR TEAM STATUS TEAM SENT PICTURE TO BO ON WALL STATUS.

28. Travel to 150 L Refuge Station 0 – 5 ✓

29. Contact Construction Miner
    a. Perform verbal Primary 0 – 5 _____
    b. Obtain info about his partner 0 – 5 ✓
    c. Place miner in a safe location (ie Refuge Station) 0 – 10 _____

30. Contact BO
    a. Report Conditions 0 – 3 _____
    b. Report Status of Construction Miner 0 – 5 _____
    c. Time Limit 0 – 2 _____
    d. Destination 0 – 2 _____
    e. Team Status 0 – 10 _____

31. Travel to RV ramp via 4210 Spur X-over 0 – 5 ✓

32. Locate Injured Construction miner at DS7 0 – 20 ✓

U/G SCENARIO

33. Contact BO via Radio
    a. Report Construction Miner located 0 – 5 ✓
    b. Report Conditions 0 – 3 ✓
    c. Time Limit 0 – 2
    d. Destination 0 – 2 ✓
    e. Team Status 0 – 10

BO REQUESTED CONDITIONS

BO REQUESTED TO LEAVE GEAR BEHIND.

34. Ensure Scoop is safe
    a. Wheel Chocks 0 – 5
    b. Master Switch 0 – 5

35. Perform First Aid (Primary)
    f. Airway 0 – 3
    g. Breathing 0 – 3
    h. Circulation 0 – 3
    i. Gross Bleed Check 0 – 3

TEAM REPORTED DOING 1ST AID TO BOB. (CONSTRUCTION MINER)

TEAM REPORTED CONDITION OF BOB AS SERIOUS.

36. Apply oxygen to casualty 0 – 5

37. Identify as Load and Go 0 – 18

OR

38. Perform First Aid (Secondary)
    j. Check head, eyes, ears 0 – 2
    k. Check neck and throat 0 – 2
    l. Check arms (left and right) 0 – 4
    m. Check Torso (front and Sides) 0 – 2
    n. Check Pelvis 0 – 2

o. Check Legs and Feet (left and right) 0 – 4 _____
p. Check Back 0 – 2 _____

39. First Aid Treatment
c. Put on medical gloves 0 – 5 _____
d. Support Casualty in position found 0 – 20 _____
e. Control bleeding 0 – 10 _____
f. Support Embedded object in position found 0 – 5 _____

40. Locate rescue tools (eDraulics) 0 – 10 _____

41. Ensure tools are safe to use 0 – 5 _____

42. Cut Casualty Free 0 – 10 _____

---------Once Casualty is cut free----------

g. Place casualty on their side in the basket 0 – 20 _____
h. Recheck vitals 0 – 5 _____
i. Evacuate casualty to surface 0 – 20 ✓

U/G SCENARIO

43. Contact BO
    a. Report Casualty turned over to F/A 0 – 5 ✓
    b. Time Limit 0 – 2 _____
    c. Destination 0 – 2 _____
    d. Team Status 0 – 10 ✓

BO REQUESTED TEAM STATUS & LOCATION

44. Get Team out of O_2 0 – 10 ✓

Miscellaneous:

Demerit:

Extreme unsafe action: Max (-25)_____

Extreme poor casualty Care: Max (-20 per casualty)_____

Damage to Mine Rescue Equipment: Max (-5 per item)_____

U/G SCENARIO

U/G SCENARIO

Team Number	Tuesday August 23rd, 2016	
1	Canada 2	Vale Manitoba Operations
2	Canada 2	Sudbury Basin Cobras, KGHM
3	Canada 2	Vale Sudbury West Mines
4	USA	MSHA Mine Emergency Unit No.1
	— Break —	— Break —
5	Russia	EMERCOM
6	Russia	JSC SUEK
7	India	Singareni
8	India	Coal India Ltd.
9	Vietnam	Vinacomin
10	Slovakia	HBP
11	Australia	Peabody Energy Wambo Coal
12	Multinational	Goldcorp Americas
13	Canada 1	Agnico Eagle Goldex Mine
	— Break —	— Break —
14	Canada 1	Compass Minerals Goderich Mine
15	Canada 1	Cameco McArthur River
16	Canada 1	Kirkland Lake Gold
17	Columbia	Colombia Coal Company
18	Columbia	Fiebre del Oro (Gold Fever)
19	Ukraine	State Militarized Mine Rescue Squad
20	China	Guizhou Yonggui Energy Company
21	China	China Pingmei Senma Group
22	China	Shaanxi Coal and Chemical Group
	— Break —	— Break —
23	Poland	Bytom Weglokoks
24	Poland	Scorpions Team Katowice
25	Poland	Gray Wolfs
26	Poland	KGHM White Eagles
27	Ireland	Boliden Tara Mines

U/G SCENARIO

TEAM: # 9

Time Under O_2 _____ Time Casualty at F/A _____

MERITS

1. *Team to be briefed by Briefing Officer* 0 – 5 _____
   - a. *Information Available* 0 – 2 _____
   - b. *Missing People Underground* 0 – 2 _____
   - c. *Actions Taken So far* 0 – 2 _____
   - d. *Team Assignment* 0 – 2 _____
   - e. *Route of travel* 0 – 2 _____
   - f. *Reserve Mine Rescue Teams* 0 – 2 _____
   - g. *Expected Conditions* 0 – 2 _____
   - h. *Mine Rescue Equipment available* 0 – 2 _____
   - i. *Transportation available* 0 – 2 _____
   - j. *Location of First aid* 0 – 2 _____
   - k. *Communication Method* 0 – 2 _____
   - l. *Synchronize Watches* 0 – 2 _____
   - m. *Establish Time Limits* 0 – 2 _____

_____

_____

_____

2. Prepare Emergency equipment to be used underground
   - a. Gas checking equipment 0 – 3 _____
   - b. First Aid Supplies 0 – 3 _____
   - c. Back up apparatus for team 0 – 5 _____
   - d. Maps, note pad 0 – 5 _____
   - e. Basket/Backboard 0 – 3 _____
   - f. Casualty Breathing Apparatus 0 – 5 _____
   - g. Firefighting equipment 0 – 5 _____

_____

_____

_____

_____

U/G SCENARIO

3. Prepare team breathing apparatuses
   a. Perform high pressure leak test 0 – 10 _____
   b. Install Ice 0 – 5 _____
   c. Anti fog mask 0 – 5 _____

4. Team under oxygen outside of Fresh Air Base 0 – 10 _____

5. Verify breathing apparatus is functioning properly 0 – 10 _____

6. Ensure Toyota operator is wearing breathing apparatus 0 – 5 _____

7. Contact BO
   a. Time Limit 0 – 2 _____
   b. Destination 0 – 2 _____
   c. Time Team under 0_2 0 – 2 _____

8. Board Toyota in a safe manner 0 – 5 _____

9. Enter mine via Portal 0 – 5 _____

10. Stop inside of portal 0 – 5 _____

U/G SCENARIO

11. Evaluate Conditions

a. Smoke 0 – 2 _____
b. CO 0 – 2 _____
c. Radio 0 – 2 _____

12. Perform Team Check

d. BG4 functioning 0 – 5 _____
e. Team OK 0 – 5 _____
f. Record info 0 – 5 _____

13. Contact BO via radio

a. Report Conditions 0 – 3 _____
b. Team Status 0 – 2 _____

14. Proceed down ramp via Toyota 0 - 5 _____

15. Locate unconscious Truck Operator 0 - 20 18

16. Contact BO via Radio

a. Report Truck operator located 0 – 5 5
b. Report Conditions 0 – 3 3
c. Time Limit 0 – 2 0
d. Destination 0 – 2 0
e. Team Status 0 – 10 0

B/O TO CHECK

Time Task completed 10 mins 40 sec

U/G SCENARIO

17. Perform First Aid (Primary)
    a. Airway 0 – 3 0
    b. Breathing 0 – 3 0
    c. Circulation 0 – 3 0
    d. Gross Bleed Check 0 – 3 3

18. Protect Casualty from further contamination 0 – 5 5

protected caravent 2min 10sec

19. Identify as Load and Go 0 – 18 0

OR

Perform First Aid (Secondary)
    a. Check head, eyes, ears 0 – 2 0
    b. Check neck and throat 0 – 2 0
    c. Check arms (left and right) 0 – 4 4
    d. Check Torso (front and Sides) 0 – 2 0
    e. Check Pelvis 0 – 2 0
    f. Check Legs and Feet (left and right) 0 – 4 4
    g. Check Back 0 – 2 0

19. Load casualty into stretcher 0 – 10 4

Dropped patient, slid off backboard, really rough

20. Transport Casualty to First Aid (surface) 0 – 10 5

Dropped patient again

U/G SCENARIO

21. Contact BO from FAB
    a. Report Casualty turned over to F/A 0 – 5 _____
    b. Report Toyota is no longer available 0 – 3 _____
    c. Time Limit 0 – 2 _____
    d. Destination 0 – 2 _____
    e. Team Status 0 – 10 _____

22. Travel to Truck location via Ramp Portal 0 – 5 _____

23. Ensure Truck is safe to pass
    a. Wheel Chocks 0 – 5 5
    b. Master Switch 0 – 5 0

24. Proceed to 3930 Sill Ore pass 0 – 5 _____

25. Contact BO
    a. Report Conditions 0 – 3 _____
    b. Time Limit to Build wall 0 – 2 _____
    c. Report Increase in Temperature 0 – 3 _____
    d. Team Status 0 – 10 _____

26. Fabricate Wall
    a. Wall Completed within Time limit (20 min) 0 – 20 _____
    b. Construction materials used are sufficient 0 – 10 _____
    c. Construction Method Sufficient 0 – 10 _____
    d. Construction work evenly shared 0 – 10 _____

27. Contact BO
    a. Report Conditions 0 – 3 _____
    b. Report Status of Wall 0 – 5 _____
    c. Time Limit 0 – 2 _____
    d. Destination 0 – 2 _____
    e. Team Status 0 – 10 _____

28. Travel to 150 L Refuge Station 0 – 5 _____

29. Contact Construction Miner
    a. Perform verbal Primary 0 – 5 _____
    b. Obtain info about his partner 0 – 5 _____
    c. Place miner in a safe location (ie Refuge Station) 0 – 10 _____

30. Contact BO
    a. Report Conditions 0 – 3 _____
    b. Report Status of Construction Miner 0 – 5 _____
    c. Time Limit 0 – 2 _____
    d. Destination 0 – 2 _____
    e. Team Status 0 – 10 _____

31. Travel to RV ramp via 4210 Spur X-over 0 – 5 _____

32. Locate Injured Construction miner at DS7 0 – 20 _____

U/G SCENARIO

33. Contact BO via Radio
    a. Report Construction Miner located 0 – 5 _____
    b. Report Conditions 0 – 3 _____
    c. Time Limit 0 – 2 _____
    d. Destination 0 – 2 _____
    e. Team Status 0 – 10 _____

34. Ensure Scoop is safe
    a. Wheel Chocks 0 – 5 _____
    b. Master Switch 0 – 5 _____

35. Perform First Aid (Primary)
    f. Airway 0 – 3 _____
    g. Breathing 0 – 3 _____
    h. Circulation 0 – 3 _____
    i. Gross Bleed Check 0 – 3 _____

36. Apply oxygen to casualty 0 – 5 _____

37. Identify as Load and Go 0 – 18 _____

OR

38. Perform First Aid (Secondary)
    j. Check head, eyes, ears 0 – 2 _____
    k. Check neck and throat 0 – 2 _____
    l. Check arms (left and right) 0 – 4 _____
    m. Check Torso (front and Sides) 0 – 2 _____
    n. Check Pelvis 0 – 2 _____

o. Check Legs and Feet (left and right) 0 – 4 _____
p. Check Back 0 – 2 _____

39. First Aid Treatment
c. Put on medical gloves 0 – 5 _____
d. Support Casualty in position found 0 – 20 _____
e. Control bleeding 0 – 10 _____
f. Support Embedded object in position found 0 – 5 _____

40. Locate rescue tools (eDraulics) 0 – 10 _____

41. Ensure tools are safe to use 0 – 5 _____

42. Cut Casualty Free 0 – 10 _____

----------Once Casualty is cut free----------

g. Place casualty on their side in the basket 0 – 20 _____
h. Recheck vitals 0 – 5 _____
i. Evacuate casualty to surface 0 – 20 _____

U/G SCENARIO

43. Contact BO
    a. Report Casualty turned over to F/A 0 – 5 _____
    b. Time Limit 0 – 2 _____
    c. Destination 0 – 2 _____
    d. Team Status 0 – 10 _____

44. Get Team out of O_2 0 – 10 _____

Miscellaneous:

Demerit:

Extreme unsafe action: Max (-25)_____

Extreme poor casualty Care: Max (-20 per casualty)_____

Damage to Mine Rescue Equipment: Max (-5 per item)_____

U/G SCENARIO

U/G SCENARIO

Team Number	Tuesday August 23rd, 2016	
1	Canada 2	Vale Manitoba Operations
2	Canada 2	Sudbury Basin Cobras, KGHM
3	Canada 2	Vale Sudbury West Mines
4	USA	MSHA Mine Emergency Unit No.1
	--- Break ---	--- Break ---
5	Russia	EMERCOM
6	Russia	JSC SUEK
7	India	Singareni
8	India	Coal India Ltd.
9	Vietnam	Vinacomin
10	Slovakia	HBP
11	Australia	Peabody Energy Wambo Coal
12	Multinational	Goldcorp Americas
13	Canada 1	Agnico Eagle Goldex Mine
	--- Break ---	--- Break ---
14	Canada 1	Compass Minerals Goderich Mine
15	Canada 1	Cameco McArthur River
16	Canada 1	Kirkland Lake Gold
17	Columbia	Colombia Coal Company
18	Columbia	Fiebre del Oro (Gold Fever)
19	Ukraine	State Militarized Mine Rescue Squad
20	China	Guizhou Yonggui Energy Company
21	China	China Pingmei Senma Group
22	China	Shaanxi Coal and Chemical Group
	--- Break ---	--- Break ---
23	Poland	Bytom Weglokoks
24	Poland	Scorpions Team Katowice
25	Poland	Gray Wolfs
26	Poland	KGHM White Eagles
27	Ireland	Boliden Tara Mines

#9 Vietnam M. Lawrence

U/G SCENARIO

27. Contact BO
    a. Report Conditions 0 – 3 _____
    b. Report Status of Wall 0 – 5 _____
    c. Time Limit 0 – 2 _____
    d. Destination 0 – 2 _____
    e. Team Status 0 – 10 _____

28. Travel to 150 L Refuge Station 0 – 5 _____

29. Contact Construction Miner
    a. Perform verbal Primary 0 – 5 _____
    b. Obtain info about his partner 0 – 5 _____
    c. Place miner in a safe location (ie Refuge Station) 0 – 10 _____

30. Contact BO
    a. Report Conditions 0 – 3 _____
    b. Report Status of Construction Miner 0 – 5 _____
    c. Time Limit 0 – 2 _____
    d. Destination 0 – 2 _____
    e. Team Status 0 – 10 _____

31. Travel to RV ramp via 4210 Spur X-over 0 – 5 _____

32. Locate Injured Construction miner at DS7 0 – 20 20

No Delays

U/G SCENARIO

33. Contact BO via Radio
    a. Report Construction Miner located 0 – 5 _____
    b. Report Conditions 0 – 3 3
    c. Time Limit 0 – 2 2
    d. Destination 0 – 2 2
    e. Team Status 0 – 10 0

34. Ensure Scoop is safe
    a. Wheel Chocks 0 – 5 0
    b. Master Switch 0 – 5 0

35. Perform First Aid (Primary)
    f. Airway 0 – 3 3
    g. Breathing 0 – 3 3
    h. Circulation 0 – 3 3
    i. Gross Bleed Check 0 – 3 0

36. Apply oxygen to casualty 0 – 5 0

37. Identify as Load and Go 0 – 18 9

OR

38. Perform First Aid (Secondary)
    j. Check head, eyes, ears 0 – 2 _____
    k. Check neck and throat 0 – 2 _____
    l. Check arms (left and right) 0 – 4 _____
    m. Check Torso (front and Sides) 0 – 2 _____
    n. Check Pelvis 0 – 2 _____

#9

U/G SCENARIO

o. Check Legs and Feet (left and right) 0 – 4 _____
p. Check Back 0 – 2 _____

Finish @ 8:08
Removed Prop

39. First Aid Treatment
c. Put on medical gloves 0 – 5 2
d. Support Casualty in position found 0 – 20 10
e. Control bleeding 0 – 10 7
f. Support Embedded object in position found 0 – 5 1

No support on object (told by judge). Fast to support patient but moved him bts

40. Locate rescue tools (eDraulics) 0 – 10 0

41. Ensure tools are safe to use 0 – 5 0

42. Cut Casualty Free 0 – 10 10

----------Once Casualty is cut free----------

g. Place casualty on their side in the basket 0 – 20 0
h. Recheck vitals 0 – 5 _____
i. Evacuate casualty to surface 0 – 20 20

#9

U/G SCENARIO

43. Contact BO
    a. Report Casualty turned over to F/A 0 – 5 _____
    b. Time Limit 0 – 2 _____
    c. Destination 0 – 2 _____
    d. Team Status 0 – 10 _____

44. Get Team out of O_2 0 – 10 _____

Miscellaneous:

Demerit:

Extreme unsafe action: Max (-25)_____

Extreme poor casualty Care: Max (-20 per casualty) -20

Tried to remove Casualty multiple times

Damage to Mine Rescue Equipment: Max (-5 per item)_____

U/G SCENARIO

U/G SCENARIO

Team Number	Tuesday August 23rd, 2016	
1	Canada 2	Vale Manitoba Operations
2	Canada 2	Sudbury Basin Cobras, KGHM
3	Canada 2	Vale Sudbury West Mines
4	USA	MSHA Mine Emergency Unit No.1
	--- Break ---	--- Break ---
5	Russia	EMERCOM
6	Russia	JSC SUEK
7	India	Singareni
8	India	Coal India Ltd.
9	Vietnam	Vinacomin
10	Slovakia	HBP
11	Australia	Peabody Energy Wambo Coal
12	Multinational	Goldcorp Americas
13	Canada 1	Agnico Eagle Goldex Mine
	--- Break ---	--- Break ---
14	Canada 1	Compass Minerals Goderich Mine
15	Canada 1	Cameco McArthur River
16	Canada 1	Kirkland Lake Gold
17	Columbia	Colombia Coal Company
18	Columbia	Fiebre del Oro (Gold Fever)
19	Ukraine	State Militarized Mine Rescue Squad
20	China	Guizhou Yonggui Energy Company
21	China	China Pingmei Senma Group
22	China	Shaanxi Coal and Chemical Group
	--- Break ---	--- Break ---
23	Poland	Bytom Weglokoks
24	Poland	Scorpions Team Katowice
25	Poland	Gray Wolfs
26	Poland	KGHM White Eagles
27	Ireland	Boliden Tara Mines

U/G SCENARIO

Shawn DeForge

TEAM: Vietnam #9

~~Time Under O_2~~ 2:04:33 TOTAL TIME

Time Casualty at F/A 6:50 out

MERITS

1. *Team to be briefed by Briefing Officer* 0 – 5 _____
   - a. *Information Available* 0 – 2 _____
   - b. *Missing People Underground* 0 – 2 _____
   - c. *Actions Taken So far* 0 – 2 _____
   - d. *Team Assignment* 0 – 2 _____
   - e. *Route of travel* 0 – 2 _____
   - f. *Reserve Mine Rescue Teams* 0 – 2 _____
   - g. *Expected Conditions* 0 – 2 _____
   - h. *Mine Rescue Equipment available* 0 – 2 _____
   - i. *Transportation available* 0 – 2 _____
   - j. *Location of First aid* 0 – 2 _____
   - k. *Communication Method* 0 – 2 _____
   - l. *Synchronize Watches* 0 – 2 _____
   - m. *Establish Time Limits* 0 – 2 _____

2. Prepare Emergency equipment to be used underground
   - a. Gas checking equipment 0 – 3 _____
   - b. First Aid Supplies 0 – 3 _____
   - c. Back up apparatus for team 0 – 5 _____
   - d. Maps, note pad 0 – 5 _____
   - e. Basket/Backboard 0 – 3 _____
   - f. Casualty Breathing Apparatus 0 – 5 _____
   - g. Firefighting equipment 0 – 5 _____

57.
107:33
164.33

U/G SCENARIO

3. Prepare team breathing apparatuses
   a. Perform high pressure leak test — 0 – 10 ✓
   b. Install Ice — 0 – 5 ✓
   c. Anti fog mask — 0 – 5 ✓

4. Team under oxygen outside of Fresh Air Base — 0 – 10 ✓

Brief Team over Radio:
Told to get under O_2

5. Verify breathing apparatus is functioning properly — 0 – 10 –

6. Ensure Toyota operator is wearing breathing apparatus — 0 – 5 –

7. Contact BO
   a. Time Limit — 0 – 2 –
   b. Destination — 0 – 2 .
   c. Time Team under O_2 — 0 – 2

8. Board Toyota in a safe manner — 0 – 5 ✓

9. Enter mine via Portal — 0 – 5 ✓

10. Stop inside of portal — 0 – 5 ✓

No Condition - No Team Check

U/G SCENARIO

11. Evaluate Conditions

a.	Smoke	0 – 2 ~
b.	CO	0 – 2 ~
c.	Radio	0 – 2 ~

12. Perform Team Check

d.	BG4 functioning	0 – 5 ~
e.	Team OK	0 – 5 ~
f.	Record info	0 – 5 ~

13. Contact BO via radio

a.	Report Conditions	0 – 3 ~
b.	Team Status	0 – 2 ~

14. Proceed down ramp via Toyota 0 - 5 ✓

15. Locate unconscious Truck Operator 0 - 20 ✓

16. Contact BO via Radio

a.	Report Truck operator located	0 – 5 ✓
b.	Report Conditions	0 – 3 ✓
c.	Time Limit	0 – 2 ~
d.	Destination	0 – 2 ~
e.	Team Status	0 – 10

Check Conditions.
Team check Done Before going to First person at Toyota

U/G SCENARIO

17. Perform First Aid (Primary)
    a. Airway 0 – 3 _____
    b. Breathing 0 – 3 _____
    c. Circulation 0 – 3 _____
    d. Gross Bleed Check 0 – 3 _____

18. Protect Casualty from further contamination 0 – 5 _____
Casualty - or - No checks
Drop off of Board Before going into Basket

19. Identify as Load and Go 0 – 18 _____

OR

Perform First Aid (Secondary)
    a. Check head, eyes, ears 0 – 2 _____
    b. Check neck and throat 0 – 2 _____
    c. Check arms (left and right) 0 – 4 _____
    d. Check Torso (front and Sides) 0 – 2 _____
    e. Check Pelvis 0 – 2 _____
    f. Check Legs and Feet (left and right) 0 – 4 _____
    g. Check Back 0 – 2 _____

19. Load casualty into stretcher 0 – 10 _____
- Drop casualty -- could not carry

20. Transport Casualty to First Aid (surface) 0 – 10 ✓

U/G SCENARIO

21. Contact BO from FAB
    a. Report Casualty turned over to F/A 0 – 5 ✓
    b. Report Toyota is no longer available 0 – 3 –
    c. Time Limit 0 – 2 –
    d. Destination 0 – 2 –
    e. Team Status 0 – 10 –

22. Travel to Truck location via Ramp Portal 0 – 5 ✓

23. Ensure Truck is safe to pass
    a. Wheel Chocks 0 – 5 No –
    b. Master Switch 0 – 5 NO –

24. Proceed to 3930 Sill Ore pass 0 – 5 ✓
Condition + Team check At 80 entrance drift

25. Contact BO
    a. Report Conditions 0 – 3 ✓
    b. Time Limit to Build wall 0 – 2 ✓
    c. Report Increase in Temperature 0 – 3 ✓
    d. Team Status 0 – 10 – ✓

26. Fabricate Wall
    a. Wall Completed within Time limit (20 min) 0 – 20 _____
    b. Construction materials used are sufficient 0 – 10 _____
    c. Construction Method Sufficient 0 – 10 _____
    d. Construction work evenly shared 0 – 10 _____

27. Contact BO
    a. Report Conditions 0 – 3 ✓
    b. Report Status of Wall 0 – 5 ✓
    c. Time Limit 0 – 2 –
    d. Destination 0 – 2 –
    e. Team Status 0 – 10 ✓

Check Temp

28. Travel to 150 L Refuge Station 0 – 5 ✓

29. Contact Construction Miner
    a. Perform verbal Primary 0 – 5 –
    b. Obtain info about his partner 0 – 5 ✓
    c. Place miner in a safe location (ie Refuge Station) 0 – 10 No

Left Jay outside RIS.
No checks No condition

30. Contact BO
    a. Report Conditions 0 – 3 –
    b. Report Status of Construction Miner 0 – 5 –
    c. Time Limit 0 – 2 –
    d. Destination 0 – 2 –
    e. Team Status 0 – 10 –

31. Travel to RV ramp via 4210 Spur X-over 0 – 5 ✓

32. Locate Injured Construction miner at DS7 0 – 20 ✓

U/G SCENARIO

33. Contact BO via Radio
    a. Report Construction Miner located 0 – 5 _____
    b. Report Conditions 0 – 3 _____
    c. Time Limit 0 – 2 _____
    d. Destination 0 – 2 _____
    e. Team Status 0 – 10 _____

34. Ensure Scoop is safe
    a. Wheel Chocks 0 – 5 _____
    b. Master Switch 0 – 5 _____

35. Perform First Aid (Primary)
    f. Airway 0 – 3 _____
    g. Breathing 0 – 3 _____
    h. Circulation 0 – 3 _____
    i. Gross Bleed Check 0 – 3 _____

36. Apply oxygen to casualty 0 – 5 _____

37. Identify as Load and Go 0 – 18 _____

OR

38. Perform First Aid (Secondary)
    j. Check head, eyes, ears 0 – 2 _____
    k. Check neck and throat 0 – 2 _____
    l. Check arms (left and right) 0 – 4 _____
    m. Check Torso (front and Sides) 0 – 2 _____
    n. Check Pelvis 0 – 2 _____

o. Check Legs and Feet (left and right) 0 – 4 _____
p. Check Back 0 – 2 _____

39. First Aid Treatment
c. Put on medical gloves 0 – 5 _____
d. Support Casualty in position found 0 – 20 _____
e. Control bleeding 0 – 10 _____
f. Support Embedded object in position found 0 – 5 _____

40. Locate rescue tools (eDraulics) 0 – 10 ✓

41. Ensure tools are safe to use 0 – 5 ⌒

42. Cut Casualty Free 0 – 10 ✓

----------Once Casualty is cut free----------

g. Place casualty on their side in the basket 0 – 20 ✓
h. Recheck vitals 0 – 5 _____
i. Evacuate casualty to surface 0 – 20 ✓

U/G SCENARIO

43. Contact BO
    a. Report Casualty turned over to F/A 0 – 5 ✓
    b. Time Limit 0 – 2 –
    c. Destination 0 – 2 –
    d. Team Status 0 – 10 ✓

44. Get Team out of O_2 0 – 10 ✓

Miscellaneous:

Demerit:

Extreme unsafe action: Max (-25)_____

Extreme poor casualty Care: Max (-20 per casualty)_____

Damage to Mine Rescue Equipment: Max (-5 per item)_____

U/G SCENARIO

U/G SCENARIO

Team Number	Tuesday August 23rd, 2016	
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2	Canada 2	Sudbury Basin Cobras, KGHM
3	Canada 2	Vale Sudbury West Mines
4	USA	MSHA Mine Emergency Unit No.1
	--- Break ---	--- Break ---
5	Russia	EMERCOM
6	Russia	JSC SUEK
7	India	Singareni
8	India	Coal India Ltd.
9	Vietnam	Vinacomin
10	Slovakia	HBP
11	Australia	Peabody Energy Wambo Coal
12	Multinational	Goldcorp Americas
13	Canada 1	Agnico Eagle Goldex Mine
	--- Break ---	--- Break ---
14	Canada 1	Compass Minerals Goderich Mine
15	Canada 1	Cameco McArthur River
16	Canada 1	Kirkland Lake Gold
17	Columbia	Colombia Coal Company
18	Columbia	Fiebre del Oro (Gold Fever)
19	Ukraine	State Militarized Mine Rescue Squad
20	China	Guizhou Yonggui Energy Company
21	China	China Pingmei Senma Group
22	China	Shaanxi Coal and Chemical Group
	--- Break ---	--- Break ---
23	Poland	Bytom Weglokoks
24	Poland	Scorpions Team Katowice
25	Poland	Gray Wolfs
26	Poland	KGHM White Eagles
27	Ireland	Boliden Tara Mines

#9

U/G SCENARIO

Wayne Parker

TEAM: VIETNAM VINACOMIN

Time Under O_2 15.45 Time Casualty at F/A _____

MERITS

1. *Team to be briefed by Briefing Officer*	0 – 5	5
a. *Information Available*	0 – 2	0
b. *Missing People Underground*	0 – 2	0
c. *Actions Taken So far*	0 – 2	0
d. *Team Assignment*	0 – 2	2
e. *Route of travel*	0 – 2	2
f. *Reserve Mine Rescue Teams*	0 – 2	0
g. *Expected Conditions*	0 – 2	0
h. *Mine Rescue Equipment available*	0 – 2	0
i. *Transportation available*	0 – 2	2
j. *Location of First aid*	0 – 2	0
k. *Communication Method*	0 – 2	0
l. *Synchronize Watches*	0 – 2	0
m. *Establish Time Limits*	0 – 2	0

2. Prepare Emergency equipment to be used underground		
a. Gas checking equipment	0 – 3	3
b. First Aid Supplies	0 – 3	3
c. Back up apparatus for team	0 – 5	5
d. Maps, note pad	0 – 5	5
e. Basket/Backboard	0 – 3	3
f. Casualty Breathing Apparatus	0 – 5	5
g. Firefighting equipment	0 – 5	5

U/G SCENARIO

3. Prepare team breathing apparatuses
   a. Perform high pressure leak test 0 – 10 10
   b. Install Ice 0 – 5 5
   c. Anti fog mask 0 – 5 5

4. Team under oxygen outside of Fresh Air Base 0 – 10 10

5. Verify breathing apparatus is functioning properly 0 – 10 0

6. Ensure Toyota operator is wearing breathing apparatus 0 – 5 0

7. Contact BO
   a. Time Limit 0 – 2 _____
   b. Destination 0 – 2 _____
   c. Time Team under 0_2 0 – 2 _____

8. Board Toyota in a safe manner 0 – 5 5

9. Enter mine via Portal 0 – 5 5

10. Stop inside of portal 0 – 5 _____

U/G SCENARIO

11. Evaluate Conditions

a.	Smoke	0 – 2 _____
b.	CO	0 – 2 _____
c.	Radio	0 – 2 _____

12. Perform Team Check

d.	BG4 functioning	0 – 5 _____
e.	Team OK	0 – 5 _____
f.	Record info	0 – 5 _____

13. Contact BO via radio

a.	Report Conditions	0 – 3 _____
b.	Team Status	0 – 2 _____

14. Proceed down ramp via Toyota 0 - 5 _____

15. Locate unconscious Truck Operator 0 - 20 _____

16. Contact BO via Radio

a.	Report Truck operator located	0 – 5 _____
b.	Report Conditions	0 – 3 _____
c.	Time Limit	0 – 2 _____
d.	Destination	0 – 2 _____
e.	Team Status	0 – 10 _____

U/G SCENARIO

17. Perform First Aid (Primary)
    a. Airway 0 – 3 _____
    b. Breathing 0 – 3 _____
    c. Circulation 0 – 3 _____
    d. Gross Bleed Check 0 – 3 _____

18. Protect Casualty from further contamination 0 – 5 _____

19. Identify as Load and Go 0 – 18 _____

OR

Perform First Aid (Secondary)
    a. Check head, eyes, ears 0 – 2 _____
    b. Check neck and throat 0 – 2 _____
    c. Check arms (left and right) 0 – 4 _____
    d. Check Torso (front and Sides) 0 – 2 _____
    e. Check Pelvis 0 – 2 _____
    f. Check Legs and Feet (left and right) 0 – 4 _____
    g. Check Back 0 – 2 _____

19. Load casualty into stretcher 0 – 10 _____

20. Transport Casualty to First Aid (surface) 0 – 10 _____

21. Contact BO from FAB
    a. Report Casualty turned over to F/A 0 – 5 _____
    b. Report Toyota is no longer available 0 – 3 _____
    c. Time Limit 0 – 2 _____
    d. Destination 0 – 2 _____
    e. Team Status 0 – 10 _____

22. Travel to Truck location via Ramp Portal 0 – 5 _____

23. Ensure Truck is safe to pass
    a. Wheel Chocks 0 – 5 _____
    b. Master Switch 0 – 5 _____

24. Proceed to 3930 Sill Ore pass 0 – 5 _____

25. Contact BO
    a. Report Conditions 0 – 3 _____
    b. Time Limit to Build wall 0 – 2 _____
    c. Report Increase in Temperature 0 – 3 _____
    d. Team Status 0 – 10 _____

26. Fabricate Wall
    a. Wall Completed within Time limit (20 min) 0 – 20 _____
    b. Construction materials used are sufficient 0 – 10 _____
    c. Construction Method Sufficient 0 – 10 _____
    d. Construction work evenly shared 0 – 10 _____

27. Contact BO
    a. Report Conditions 0 – 3 _____
    b. Report Status of Wall 0 – 5 _____
    c. Time Limit 0 – 2 _____
    d. Destination 0 – 2 _____
    e. Team Status 0 – 10 _____

28. Travel to 150 L Refuge Station 0 – 5 _____

29. Contact Construction Miner
    a. Perform verbal Primary 0 – 5 _____
    b. Obtain info about his partner 0 – 5 _____
    c. Place miner in a safe location (ie Refuge Station) 0 – 10 _____

30. Contact BO
    a. Report Conditions 0 – 3 _____
    b. Report Status of Construction Miner 0 – 5 _____
    c. Time Limit 0 – 2 _____
    d. Destination 0 – 2 _____
    e. Team Status 0 – 10 _____

31. Travel to RV ramp via 4210 Spur X-over 0 – 5 _____

32. Locate Injured Construction miner at DS7 0 – 20 _____

U/G SCENARIO

33. Contact BO via Radio
    a. Report Construction Miner located 0 – 5 _____
    b. Report Conditions 0 – 3 _____
    c. Time Limit 0 – 2 _____
    d. Destination 0 – 2 _____
    e. Team Status 0 – 10 _____

34. Ensure Scoop is safe
    a. Wheel Chocks 0 – 5 _____
    b. Master Switch 0 – 5 _____

35. Perform First Aid (Primary)
    f. Airway 0 – 3 _____
    g. Breathing 0 – 3 _____
    h. Circulation 0 – 3 _____
    i. Gross Bleed Check 0 – 3 _____

36. Apply oxygen to casualty 0 – 5 _____

37. Identify as Load and Go 0 – 18 _____

OR

38. Perform First Aid (Secondary)
    j. Check head, eyes, ears 0 – 2 _____
    k. Check neck and throat 0 – 2 _____
    l. Check arms (left and right) 0 – 4 _____
    m. Check Torso (front and Sides) 0 – 2 _____
    n. Check Pelvis 0 – 2 _____

o. Check Legs and Feet (left and right) 0 – 4 _____
p. Check Back 0 – 2 _____

39. First Aid Treatment
c. Put on medical gloves 0 – 5 _____
d. Support Casualty in position found 0 – 20 _____
e. Control bleeding 0 – 10 _____
f. Support Embedded object in position found 0 – 5 _____

40. Locate rescue tools (eDraulics) 0 – 10 _____

41. Ensure tools are safe to use 0 – 5 _____

42. Cut Casualty Free 0 – 10 _____

----------Once Casualty is cut free----------

g. Place casualty on their side in the basket 0 – 20 _____
h. Recheck vitals 0 – 5 _____
i. Evacuate casualty to surface 0 – 20 _____

U/G SCENARIO

43. Contact BO
    a. Report Casualty turned over to F/A 0 – 5 _____
    b. Time Limit 0 – 2 _____
    c. Destination 0 – 2 _____
    d. Team Status 0 – 10 _____

44. Get Team out of O_2 0 – 10 _____

Miscellaneous:

Demerit:

Extreme unsafe action: Max (-25)_____

Extreme poor casualty Care: Max (-20 per casualty)_____

Damage to Mine Rescue Equipment: Max (-5 per item)_____

U/G SCENARIO

U/G SCENARIO

Team Number	Tuesday August 23rd, 2016	
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2	Canada 2	Sudbury Basin Cobras, KGHM
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	— Break —	— Break —
5	Russia	EMERCOM
6	Russia	JSC SUEK
7	India	Singareni
8	India	Coal India Ltd.
9	Vietnam	Vinacomin
10	Slovakia	HBP
11	Australia	Peabody Energy Wambo Coal
12	Multinational	Goldcorp Americas
13	Canada 1	Agnico Eagle Goldex Mine
	— Break —	— Break —
14	Canada 1	Compass Minerals Goderich Mine
15	Canada 1	Cameco McArthur River
16	Canada 1	Kirkland Lake Gold
17	Columbia	Colombia Coal Company
18	Columbia	Fiebre del Oro (Gold Fever)
19	Ukraine	State Militarized Mine Rescue Squad
20	China	Guizhou Yonggui Energy Company
21	China	China Pingmei Senma Group
22	China	Shaanxi Coal and Chemical Group
	— Break —	— Break —
23	Poland	Bytom Weglokoks
24	Poland	Scorpions Team Katowice
25	Poland	Gray Wolfs
26	Poland	KGHM White Eagles
27	Ireland	Boliden Tara Mines

U/G SCENARIO

#9 M J Mills

TEAM: VIET NAM – VINACOMIN

Time Under O_2 13:45 Time Casualty at F/A _____

MERITS

1. *Team to be briefed by Briefing Officer*	0 – 5	5
a. *Information Available*	0 – 2	0
b. *Missing People Underground*	0 – 2	0
c. *Actions Taken So far*	0 – 2	0
d. *Team Assignment*	0 – 2	2
e. *Route of travel*	0 – 2	2
f. *Reserve Mine Rescue Teams*	0 – 2	0
g. *Expected Conditions*	0 – 2	0
h. *Mine Rescue Equipment available*	0 – 2	0
i. *Transportation available*	0 – 2	2
j. *Location of First aid*	0 – 2	0
k. *Communication Method*	0 – 2	0
l. *Synchronize Watches*	0 – 2	0
m. *Establish Time Limits*	0 – 2	0

2. Prepare Emergency equipment to be used underground		
a. Gas checking equipment	0 – 3	3
b. First Aid Supplies	0 – 3	3
c. Back up apparatus for team	0 – 5	5
d. Maps, note pad	0 – 5	5
e. Basket/Backboard	0 – 3	3
f. Casualty Breathing Apparatus	0 – 5	5
g. Firefighting equipment	0 – 5	5

U/G SCENARIO

3. Prepare team breathing apparatuses
   a. Perform high pressure leak test — 0 – 10 10
   b. Install Ice — 0 – 5 5
   c. Anti fog mask — 0 – 5 5

4. Team under oxygen outside of Fresh Air Base — 0 – 10 10

5. Verify breathing apparatus is functioning properly — 0 – 10 0

6. Ensure Toyota operator is wearing breathing apparatus — 0 – 5 0

7. Contact BO
   a. Time Limit — 0 – 2 _____
   b. Destination — 0 – 2 _____
   c. Time Team under 0_2 — 0 – 2 _____

8. Board Toyota in a safe manner — 0 – 5 5

9. Enter mine via Portal — 0 – 5 _____

10. Stop inside of portal — 0 – 5 _____

U/G SCENARIO

11. Evaluate Conditions

a. Smoke 0 – 2 _____
b. CO 0 – 2 _____
c. Radio 0 – 2 _____

12. Perform Team Check

d. BG4 functioning 0 – 5 _____
e. Team OK 0 – 5 _____
f. Record info 0 – 5 _____

13. Contact BO via radio

a. Report Conditions 0 – 3 _____
b. Team Status 0 – 2 _____

14. Proceed down ramp via Toyota 0 - 5 _____

15. Locate unconscious Truck Operator 0 - 20 _____

16. Contact BO via Radio

a. Report Truck operator located 0 – 5 _____
b. Report Conditions 0 – 3 _____
c. Time Limit 0 – 2 _____
d. Destination 0 – 2 _____
e. Team Status 0 – 10 _____

U/G SCENARIO

17. Perform First Aid (Primary)
    a. Airway 0 – 3 _____
    b. Breathing 0 – 3 _____
    c. Circulation 0 – 3 _____
    d. Gross Bleed Check 0 – 3 _____

18. Protect Casualty from further contamination 0 – 5 _____

19. Identify as Load and Go 0 – 18 _____

OR

Perform First Aid (Secondary)
    a. Check head, eyes, ears 0 – 2 _____
    b. Check neck and throat 0 – 2 _____
    c. Check arms (left and right) 0 – 4 _____
    d. Check Torso (front and Sides) 0 – 2 _____
    e. Check Pelvis 0 – 2 _____
    f. Check Legs and Feet (left and right) 0 – 4 _____
    g. Check Back 0 – 2 _____

19. Load casualty into stretcher 0 – 10 _____

20. Transport Casualty to First Aid (surface) 0 – 10 _____

U/G SCENARIO

21. Contact BO from FAB
    a. Report Casualty turned over to F/A 0 – 5 _____
    b. Report Toyota is no longer available 0 – 3 _____
    c. Time Limit 0 – 2 _____
    d. Destination 0 – 2 _____
    e. Team Status 0 – 10 _____

22. Travel to Truck location via Ramp Portal 0 – 5 _____

23. Ensure Truck is safe to pass
    a. Wheel Chocks 0 – 5 _____
    b. Master Switch 0 – 5 _____

24. Proceed to 3930 Sill Ore pass 0 – 5 _____

25. Contact BO
    a. Report Conditions 0 – 3 _____
    b. Time Limit to Build wall 0 – 2 _____
    c. Report Increase in Temperature 0 – 3 _____
    d. Team Status 0 – 10 _____

26. Fabricate Wall
    a. Wall Completed within Time limit (20 min) 0 – 20 _____
    b. Construction materials used are sufficient 0 – 10 _____
    c. Construction Method Sufficient 0 – 10 _____
    d. Construction work evenly shared 0 – 10 _____

27. Contact BO
    a. Report Conditions 0 – 3 _____
    b. Report Status of Wall 0 – 5 _____
    c. Time Limit 0 – 2 _____
    d. Destination 0 – 2 _____
    e. Team Status 0 – 10 _____

28. Travel to 150 L Refuge Station 0 – 5 _____

29. Contact Construction Miner
    a. Perform verbal Primary 0 – 5 _____
    b. Obtain info about his partner 0 – 5 _____
    c. Place miner in a safe location (ie Refuge Station) 0 – 10 _____

30. Contact BO
    a. Report Conditions 0 – 3 _____
    b. Report Status of Construction Miner 0 – 5 _____
    c. Time Limit 0 – 2 _____
    d. Destination 0 – 2 _____
    e. Team Status 0 – 10 _____

31. Travel to RV ramp via 4210 Spur X-over 0 – 5 _____

32. Locate Injured Construction miner at DS7 0 – 20 _____

U/G SCENARIO

33. Contact BO via Radio
    a. Report Construction Miner located 0 – 5 _____
    b. Report Conditions 0 – 3 _____
    c. Time Limit 0 – 2 _____
    d. Destination 0 – 2 _____
    e. Team Status 0 – 10 _____

34. Ensure Scoop is safe
    a. Wheel Chocks 0 – 5 _____
    b. Master Switch 0 – 5 _____

35. Perform First Aid (Primary)
    f. Airway 0 – 3 _____
    g. Breathing 0 – 3 _____
    h. Circulation 0 – 3 _____
    i. Gross Bleed Check 0 – 3 _____

36. Apply oxygen to casualty 0 – 5 _____

37. Identify as Load and Go 0 – 18 _____

OR

38. Perform First Aid (Secondary)
    j. Check head, eyes, ears 0 – 2 _____
    k. Check neck and throat 0 – 2 _____
    l. Check arms (left and right) 0 – 4 _____
    m. Check Torso (front and Sides) 0 – 2 _____
    n. Check Pelvis 0 – 2 _____

o. Check Legs and Feet (left and right) 0 – 4 _____
p. Check Back 0 – 2 _____

39. First Aid Treatment
c. Put on medical gloves 0 – 5 _____
d. Support Casualty in position found 0 – 20 _____
e. Control bleeding 0 – 10 _____
f. Support Embedded object in position found 0 – 5 _____

40. Locate rescue tools (eDraulics) 0 – 10 _____

41. Ensure tools are safe to use 0 – 5 _____

42. Cut Casualty Free 0 – 10 _____

----------Once Casualty is cut free----------

g. Place casualty on their side in the basket 0 – 20 _____
h. Recheck vitals 0 – 5 _____
i. Evacuate casualty to surface 0 – 20 _____

U/G SCENARIO

43. Contact BO
    a. Report Casualty turned over to F/A 0 – 5 _____
    b. Time Limit 0 – 2 _____
    c. Destination 0 – 2 _____
    d. Team Status 0 – 10 _____

44. Get Team out of O_2 0 – 10 _____

Miscellaneous:

Demerit:

Extreme unsafe action: Max (-25)_____

Extreme poor casualty Care: Max (-20 per casualty)_____

Damage to Mine Rescue Equipment: Max (-5 per item)_____

U/G SCENARIO

U/G SCENARIO

Team Number	Tuesday August 23rd, 2016	
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2	Canada 2	Sudbury Basin Cobras, KGHM
3	Canada 2	Vale Sudbury West Mines
4	USA	MSHA Mine Emergency Unit No.1
	— Break —	— Break —
5	Russia	EMERCOM
6	Russia	JSC SUEK
7	India	Singareni
8	India	Coal India Ltd.
9	Vietnam	Vinacomin
10	Slovakia	HBP
11	Australia	Peabody Energy Wambo Coal
12	Multinational	Goldcorp Americas
13	Canada 1	Agnico Eagle Goldex Mine
	— Break —	— Break —
14	Canada 1	Compass Minerals Goderich Mine
15	Canada 1	Cameco McArthur River
16	Canada 1	Kirkland Lake Gold
17	Columbia	Colombia Coal Company
18	Columbia	Fiebre del Oro (Gold Fever)
19	Ukraine	State Militarized Mine Rescue Squad
20	China	Guizhou Yonggui Energy Company
21	China	China Pingmei Senma Group
22	China	Shaanxi Coal and Chemical Group
	— Break —	— Break —
23	Poland	Bytom Weglokoks
24	Poland	Scorpions Team Katowice
25	Poland	Gray Wolfs
26	Poland	KGHM White Eagles
27	Ireland	Boliden Tara Mines

APPENDIX A2 – CAPTAIN AND BRIEFING OFFICER REPORTS

BO/Captian Report Not Submitted by Team.
Did not count towards overall score.

APPENDIX A3 – TABLET DATA

Incident ID:	201608230321	Mine	VALE 114 OB	Incident Type:	Competition
Date & Time of Incident	Aug-23-2016 06:21			District	Competition
MRO	Nicole Darbaz				

Team ID: 20160823032525

Members:

Role	Name	Apparatus #	Presure	Time
Briefing Officer	Pham Van Hieu			
Captain	Cao Van Tam	1	200	06:25
No. 2	Nguten Hoang Nam	2	200	06:25
No. 3	Bui Xuan Hai	3	200	06:25
No. 4	Nguyen Van Hung	4	200	06:25
V. Captain	Pham Van Ha	5	200	06:25
No. 6				

Captains Equipment

Standard

MX6 Gas Monitor	0
SSR 90M (Team Unit)	0
First Aid Kit	0
Kestrel	0
Chalk - Paint	0
Probe Stick	0
Draeger X-am 5000	0
BG4	0
Carevent	0
Stretcher	0
Fire Fighting Equipment	0
Communications	0
Whistles	0

Auxillary

Fire Fighting Equipment	0
Tools	0
SSR 90	0
Level Plans	0
Special Equipment	0
Communications	0
Carevent	0
Other	0
BG4	0
Stretcher	0

Captain's O2 Readings

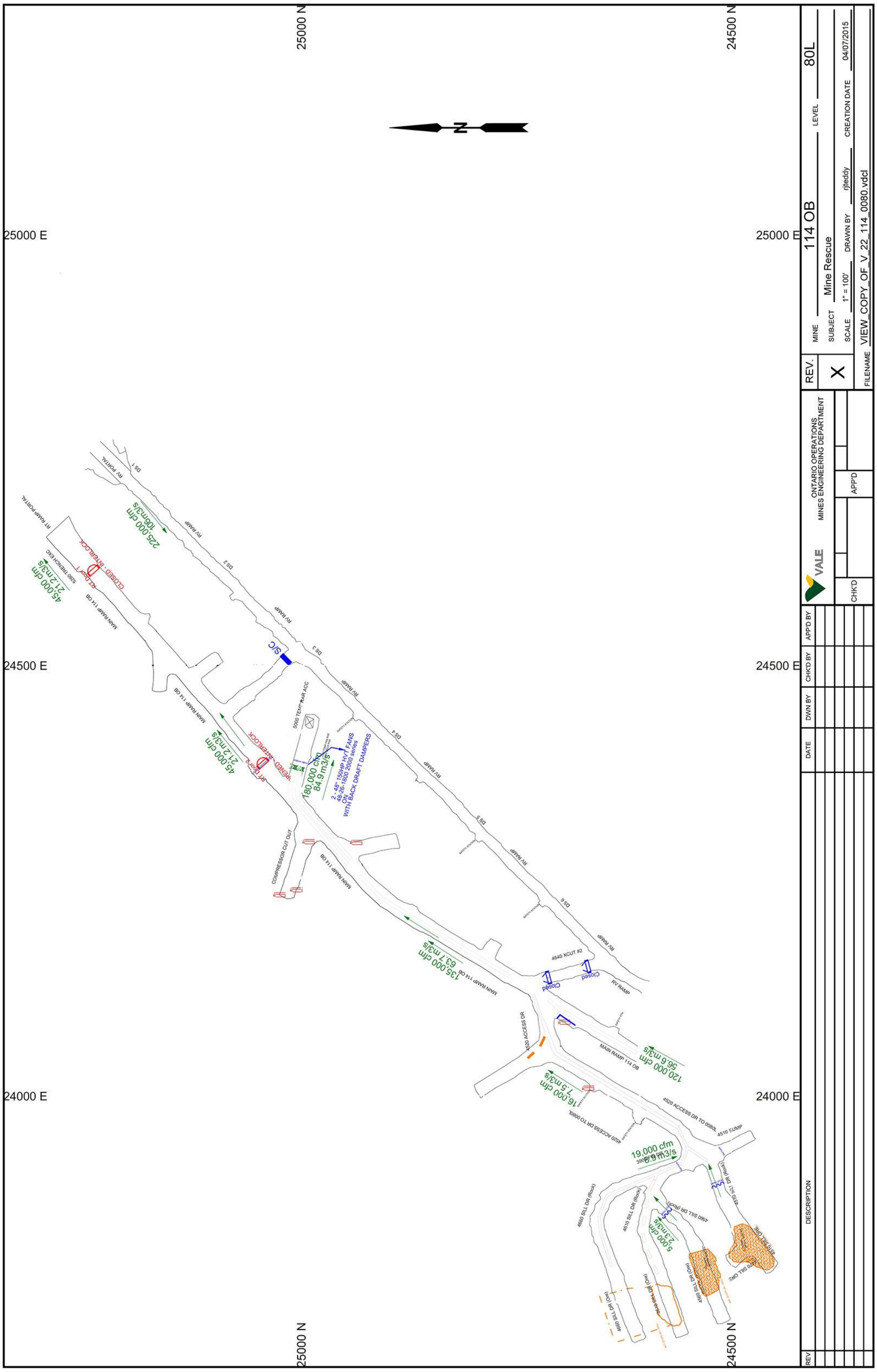
Time	Captain	No.2	No.3	No.4	V Captain	No.6
06:25	200	200	200	200	200	
07:09	1	1	1	1	1	

Captain's Notes

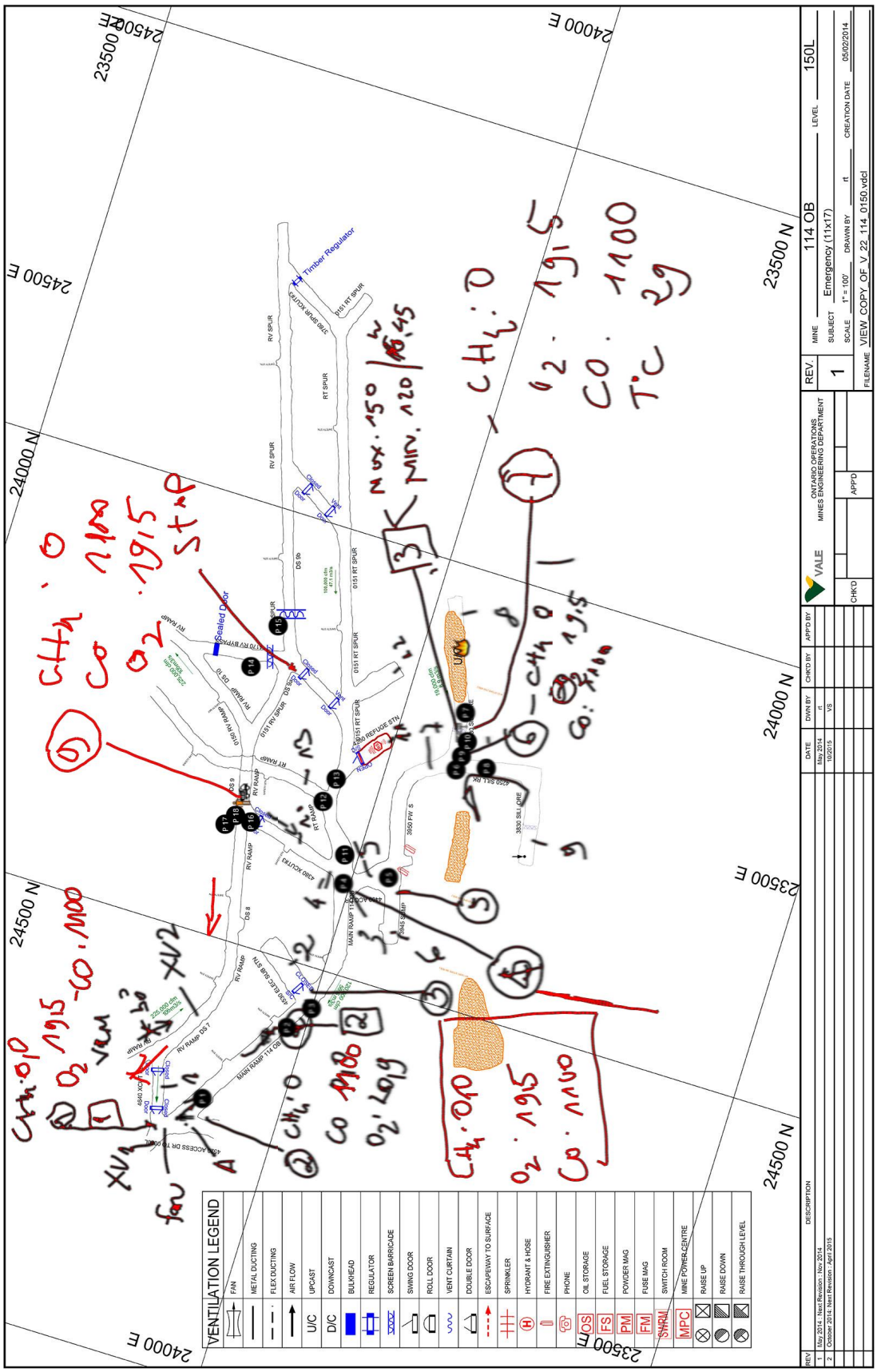
Time	Location	Smk	CO	O2	CH4	Doors	Fans	Flow	Time Limit	Destination/ Report

Markups

80 LEVEL

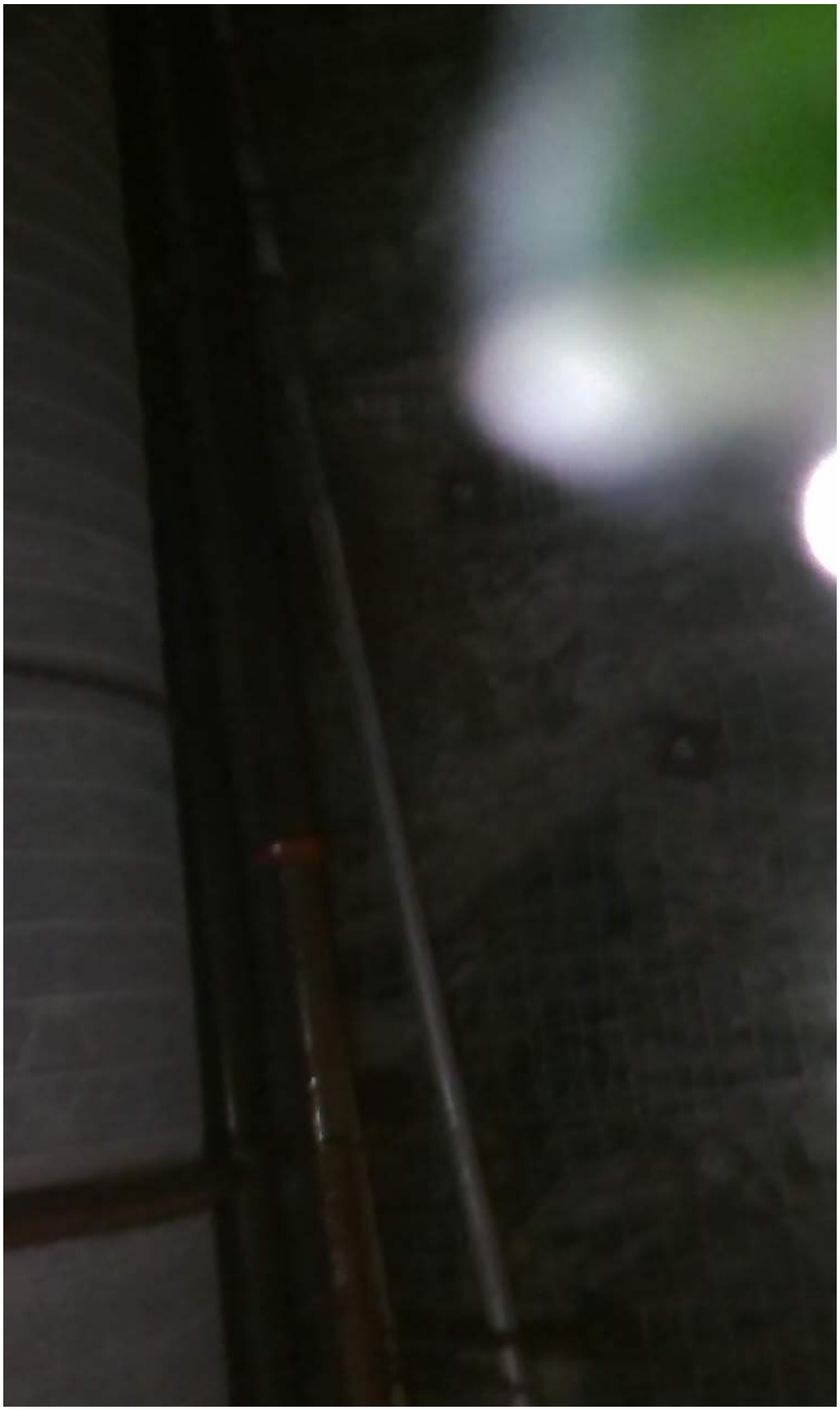


150 LEVEL


VENTILATION LEGEND
FAN
METAL DUCTING
FLEX DUCTING
AIR FLOW
U/C UPCAST
D/C DOWNCAST
BULKHEAD
REGULATOR
SCREEN BARRICADE
SWING DOOR
ROLL DOOR
VENT CURTAIN
DOUBLE DOOR
ESCAPEWAY TO SURFACE
SPRINKLER
HYDRANT & HOSE
FIRE EXTINGUISHER
PHONE
OS OIL STORAGE
FS FUEL STORAGE
PM POWDER MAG
FM FUSE MAG
SWRM SWITCH ROOM
MPC MINE POWER CENTRE
RAISE UP
RAISE DOWN
RAISE THROUGH LEVEL
24000 E
24500 E
23500 E
24500 N
24000 N
23500 N
Timber Regulator
Sealed Door
REV DESCRIPTION DATE DWN BY CHK'D BY APP'D BY
1 May 2014 - Next Revision - Nov 2014 May 2014 rt
2 October 2014- Next Revision - April 2015 10/2015 VS
VALE
ONTARIO OPERATIONS
MINES ENGINEERING DEPARTMENT
CHK'D
APP'D
REV. 1
MINE 114 OB
LEVEL 150L
SUBJECT Emergency (11x17)
SCALE 1" = 100'
DRAWN BY rt
CREATION DATE 05/02/2014
FILENAME VIEW_COPY_OF_V_22_114_0150.vdcl

P 1

P 2



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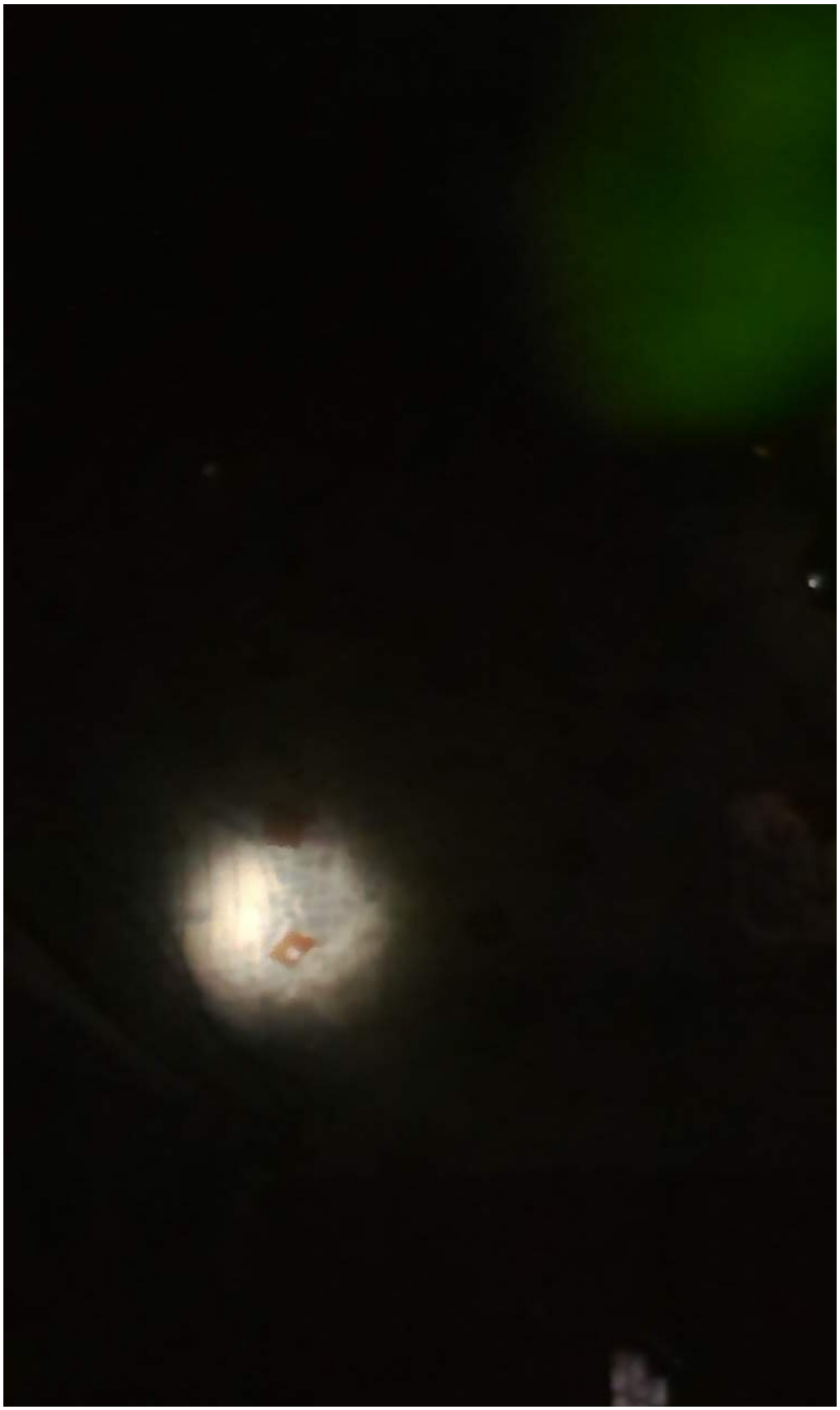

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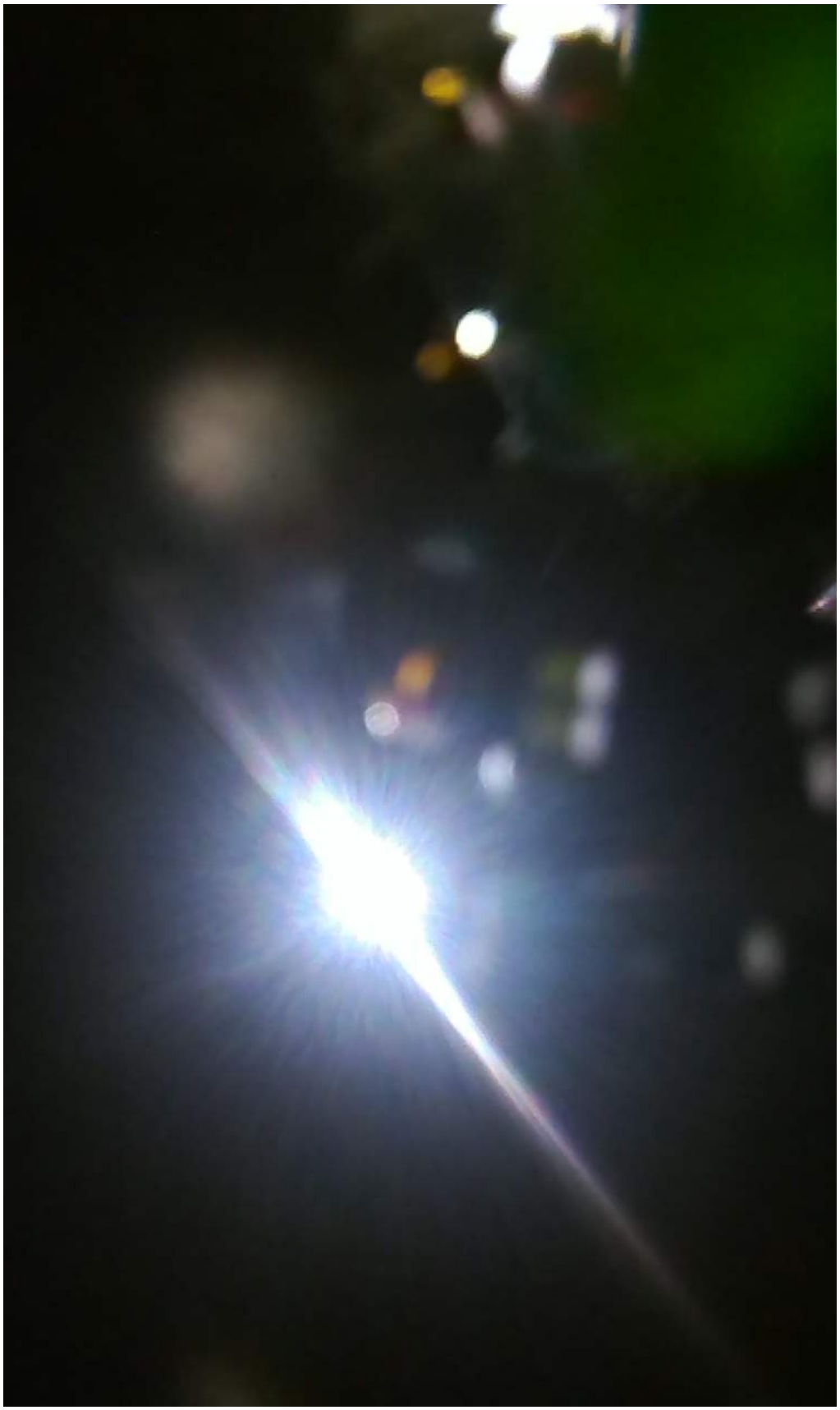

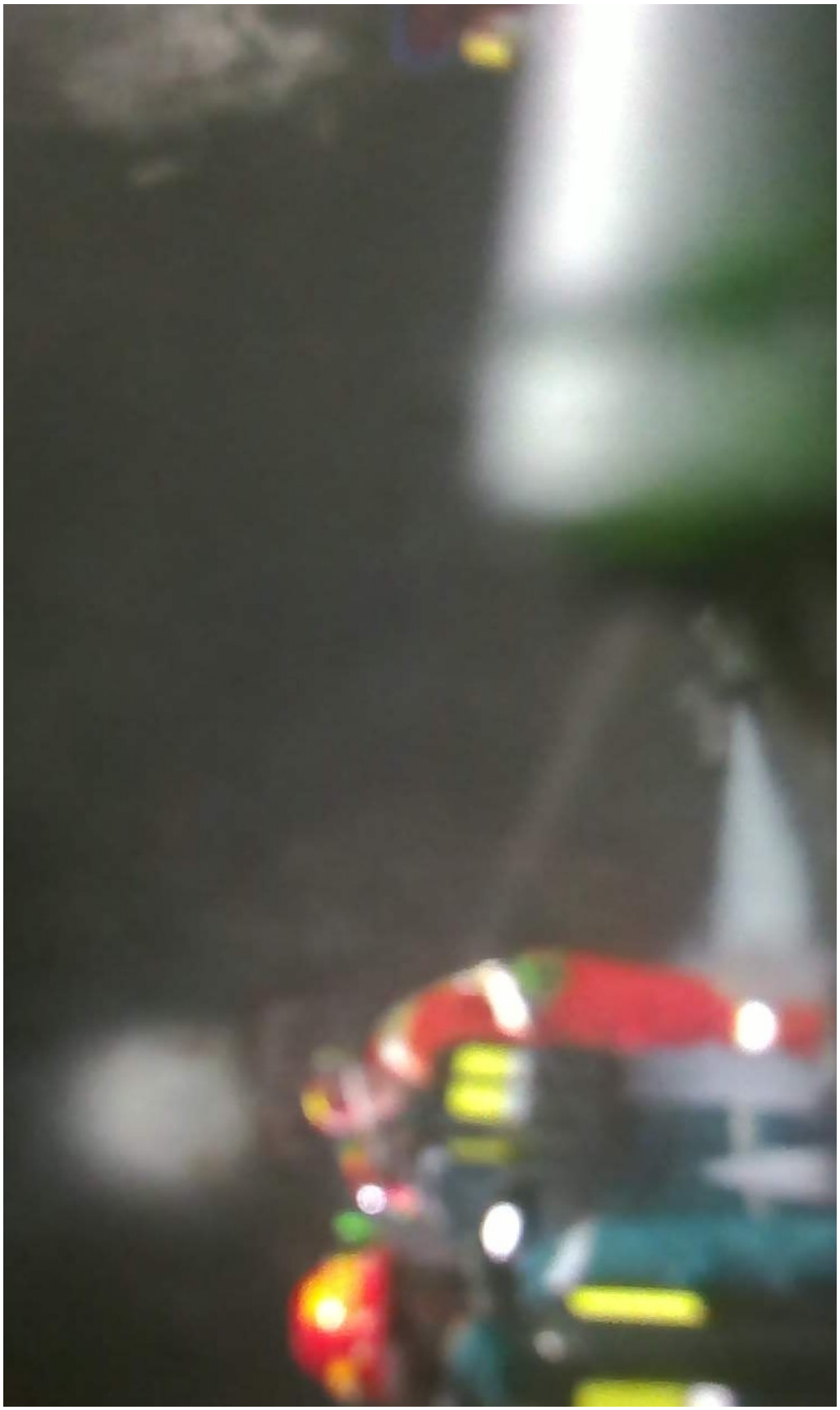

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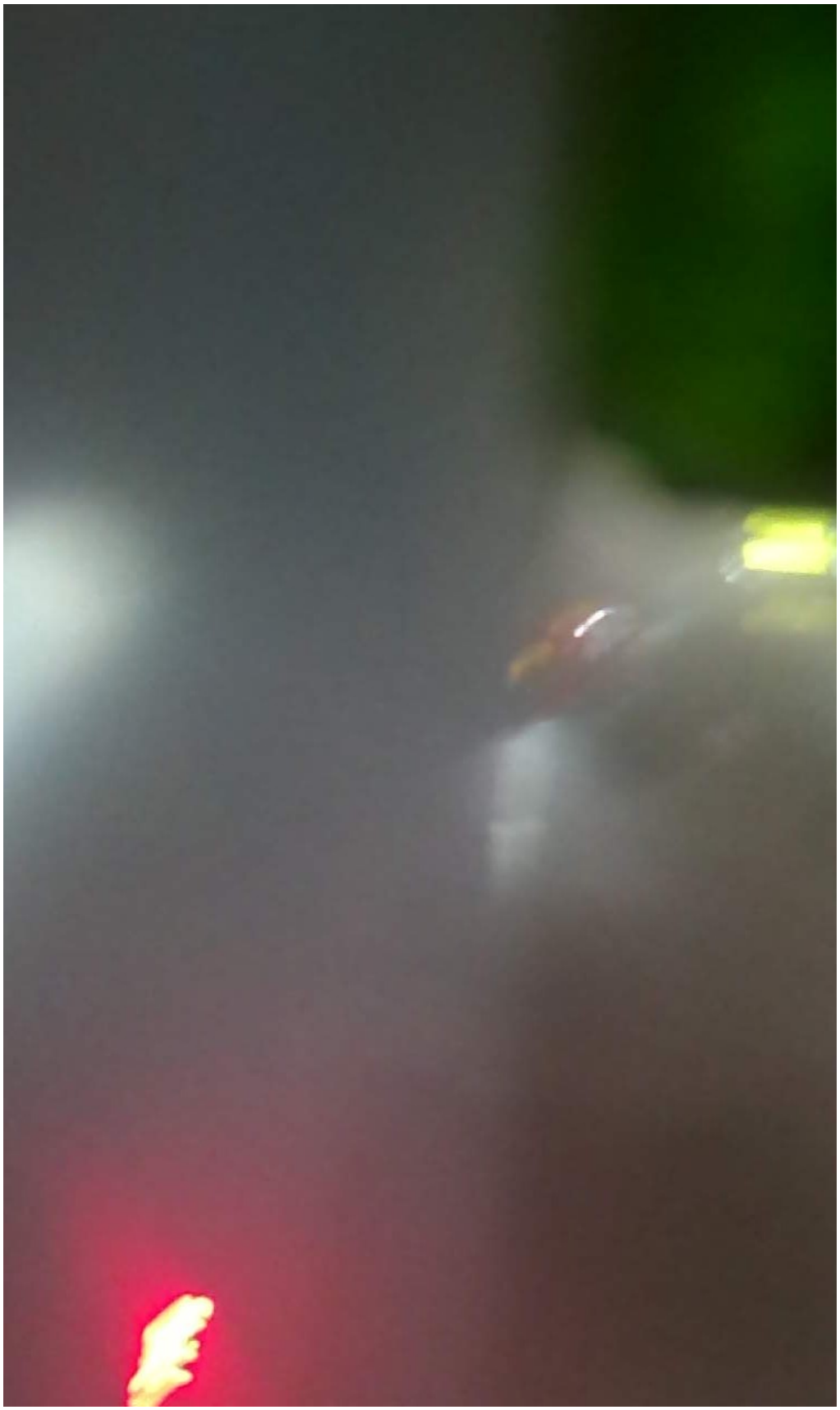

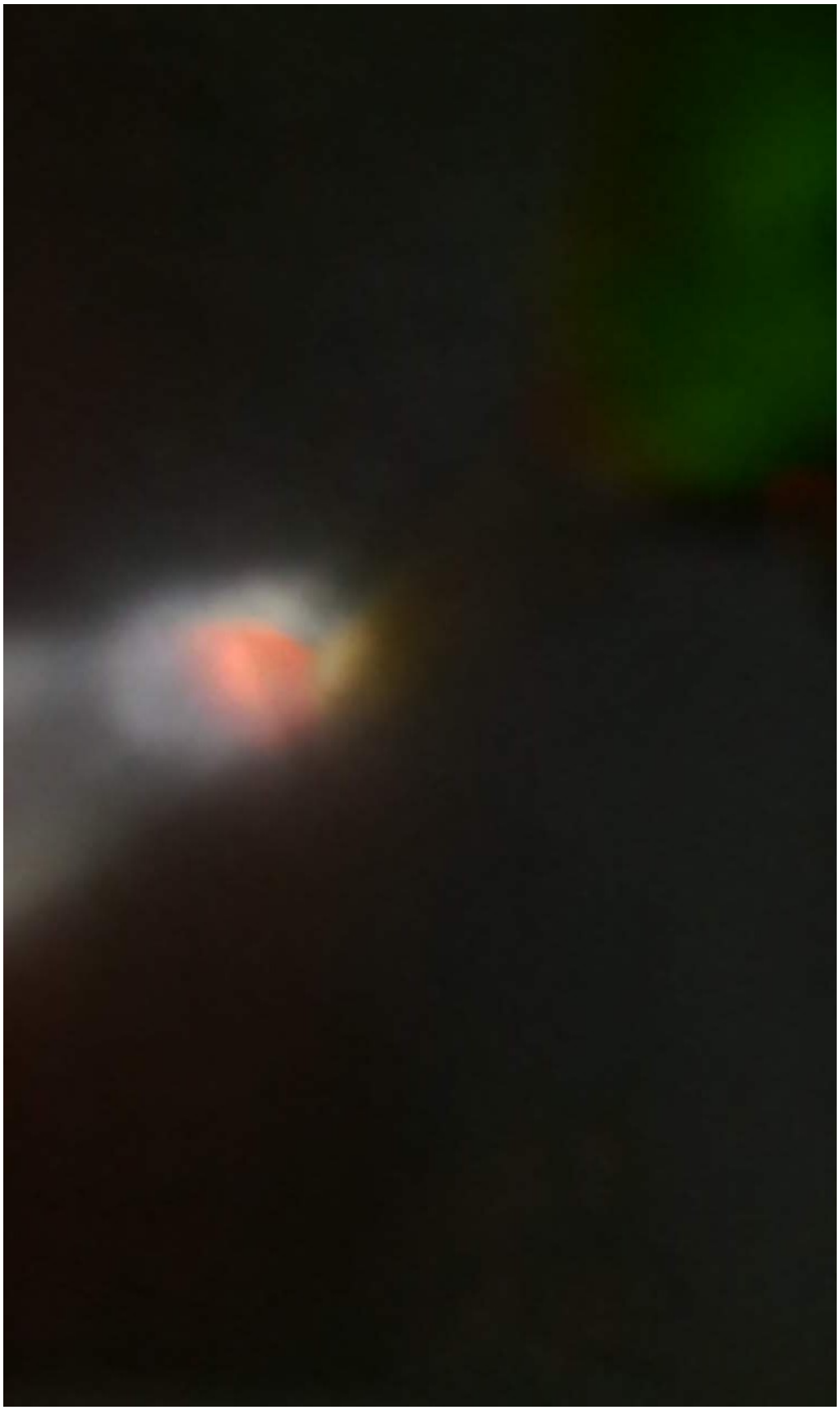

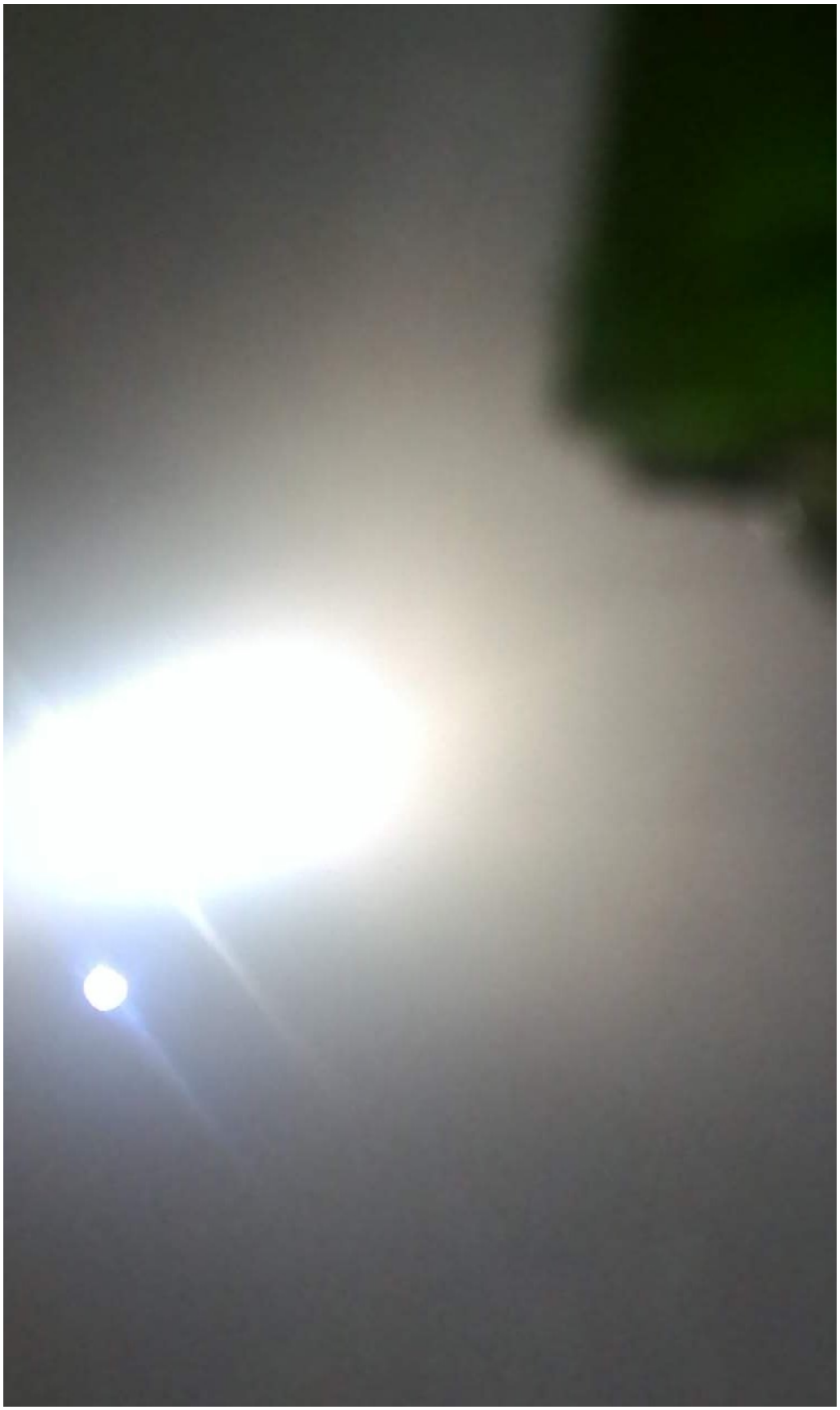

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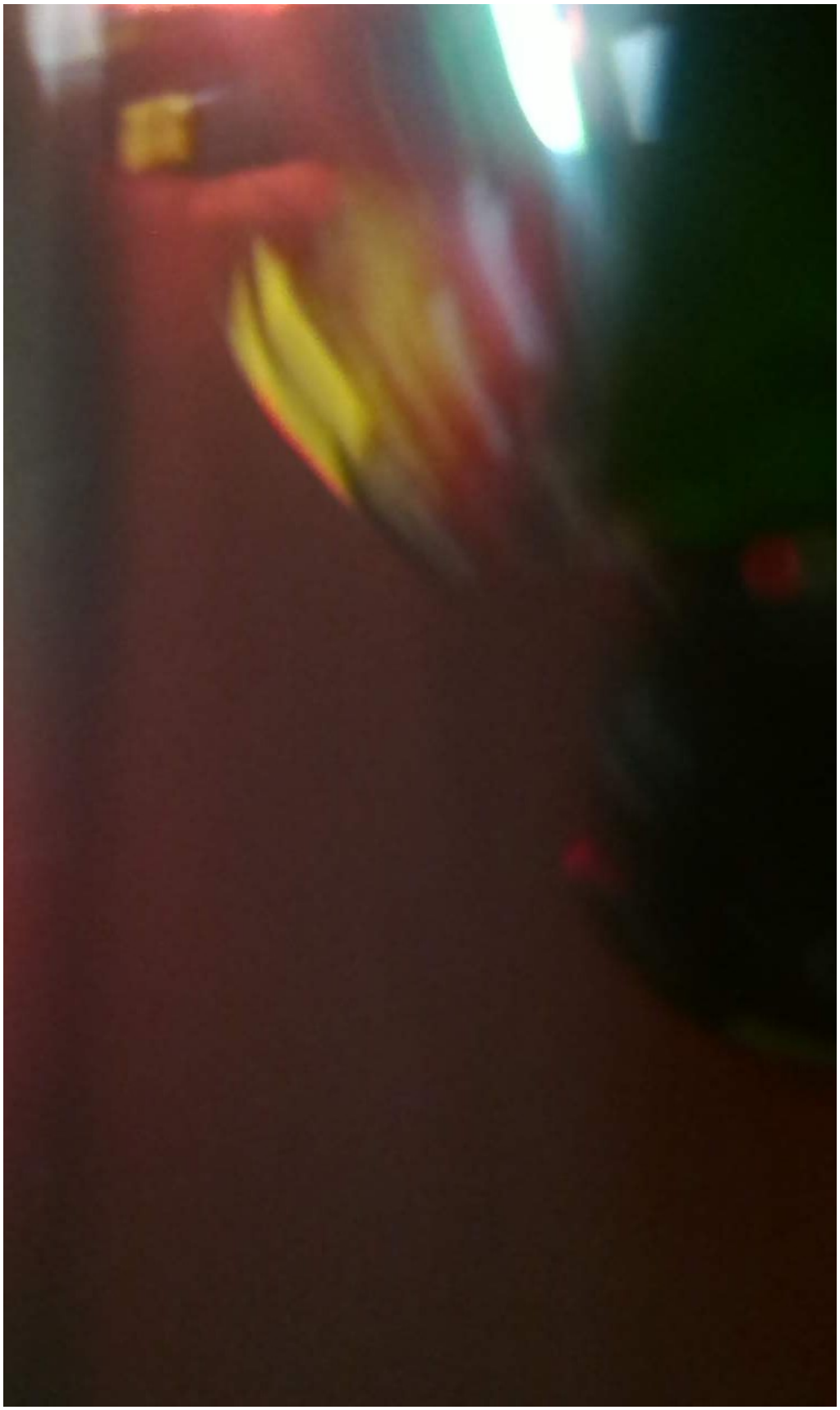
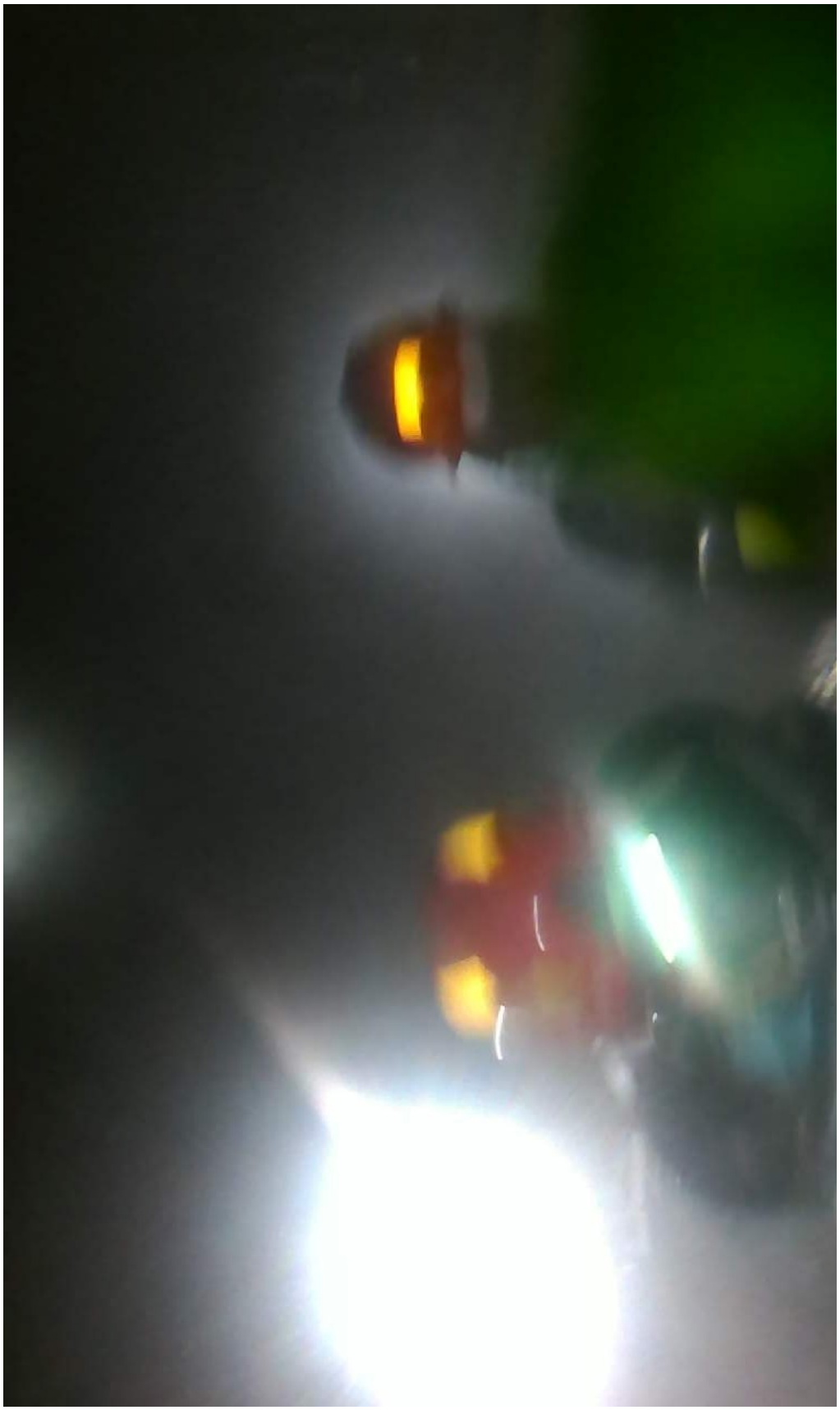
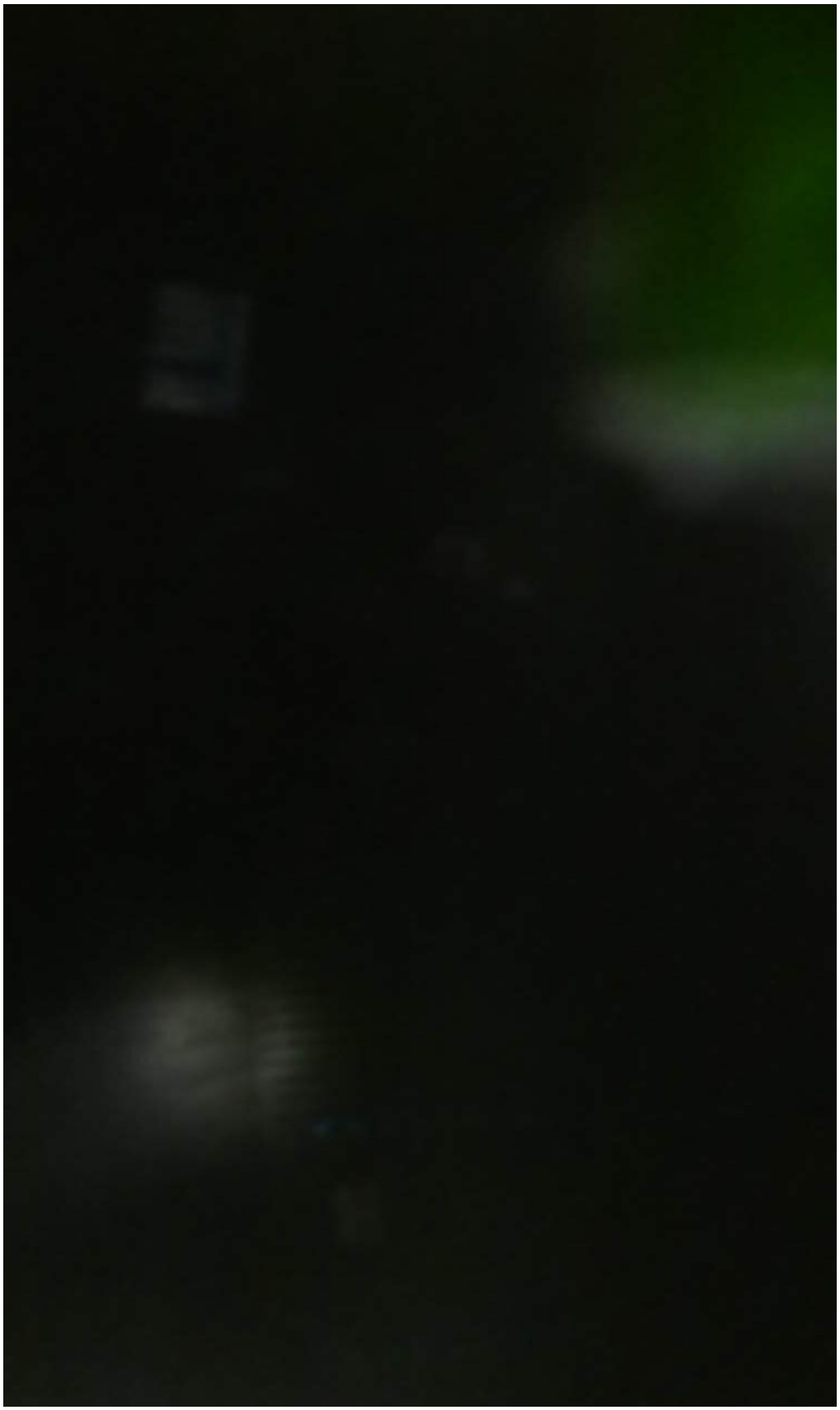


P 10

P 11





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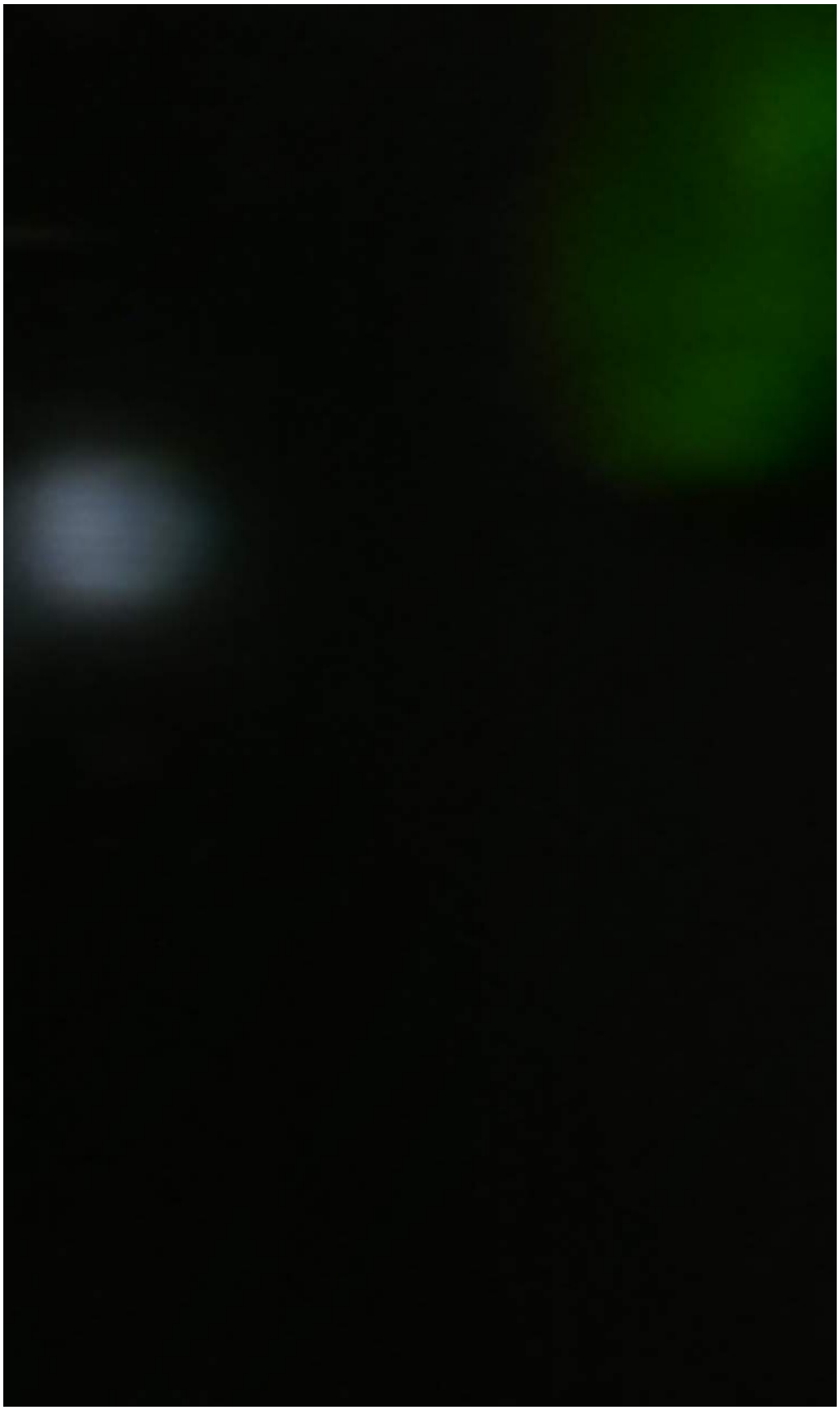

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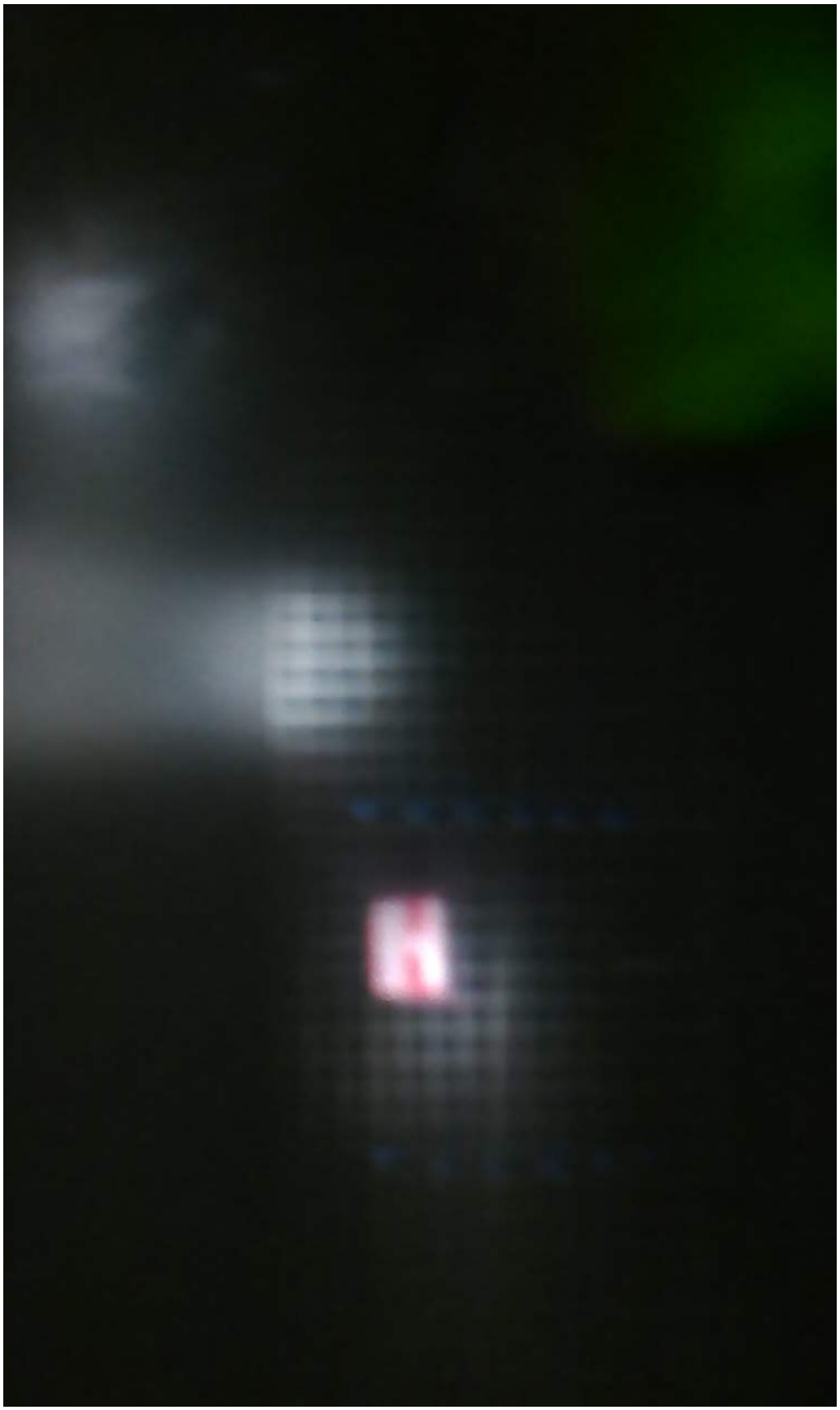

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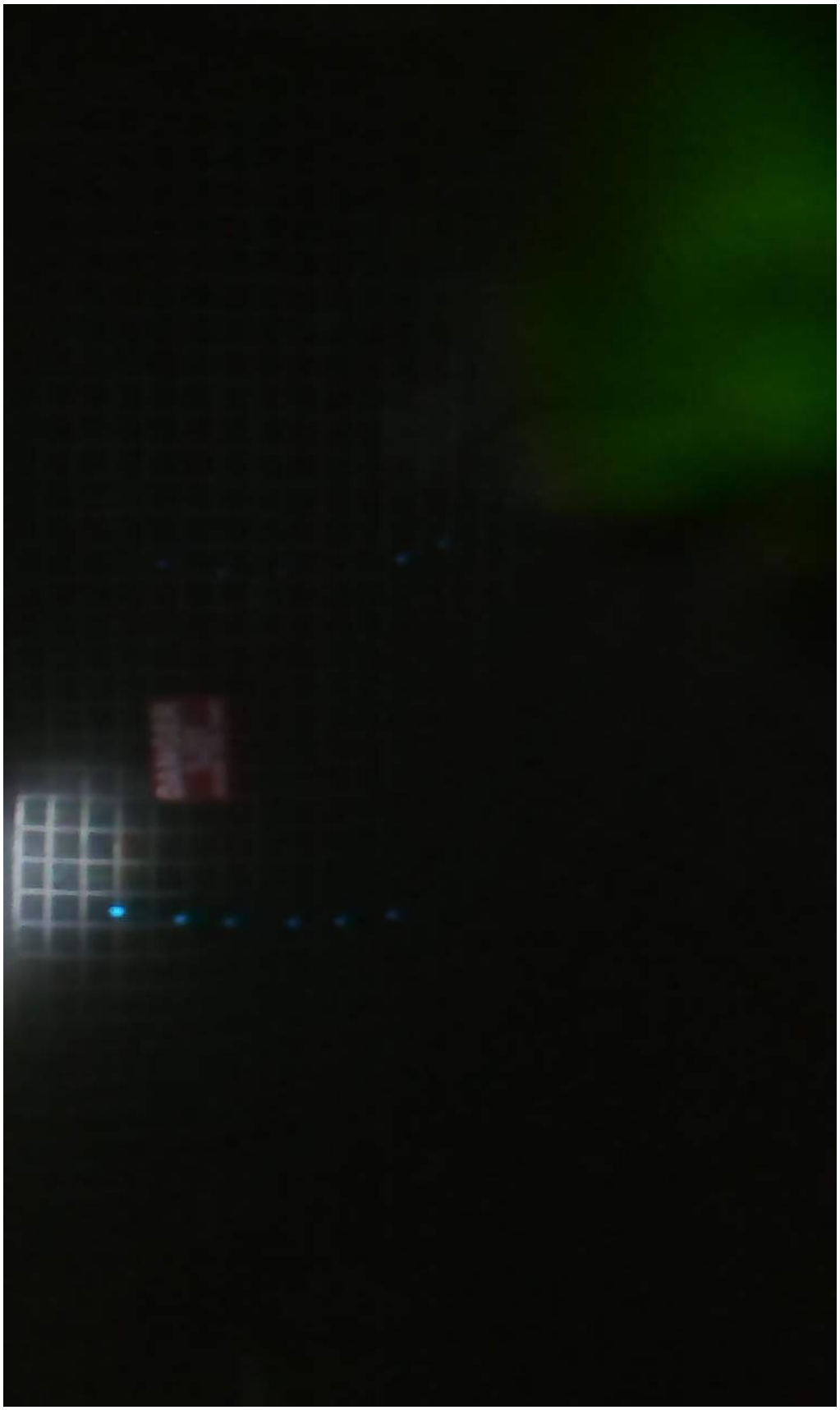


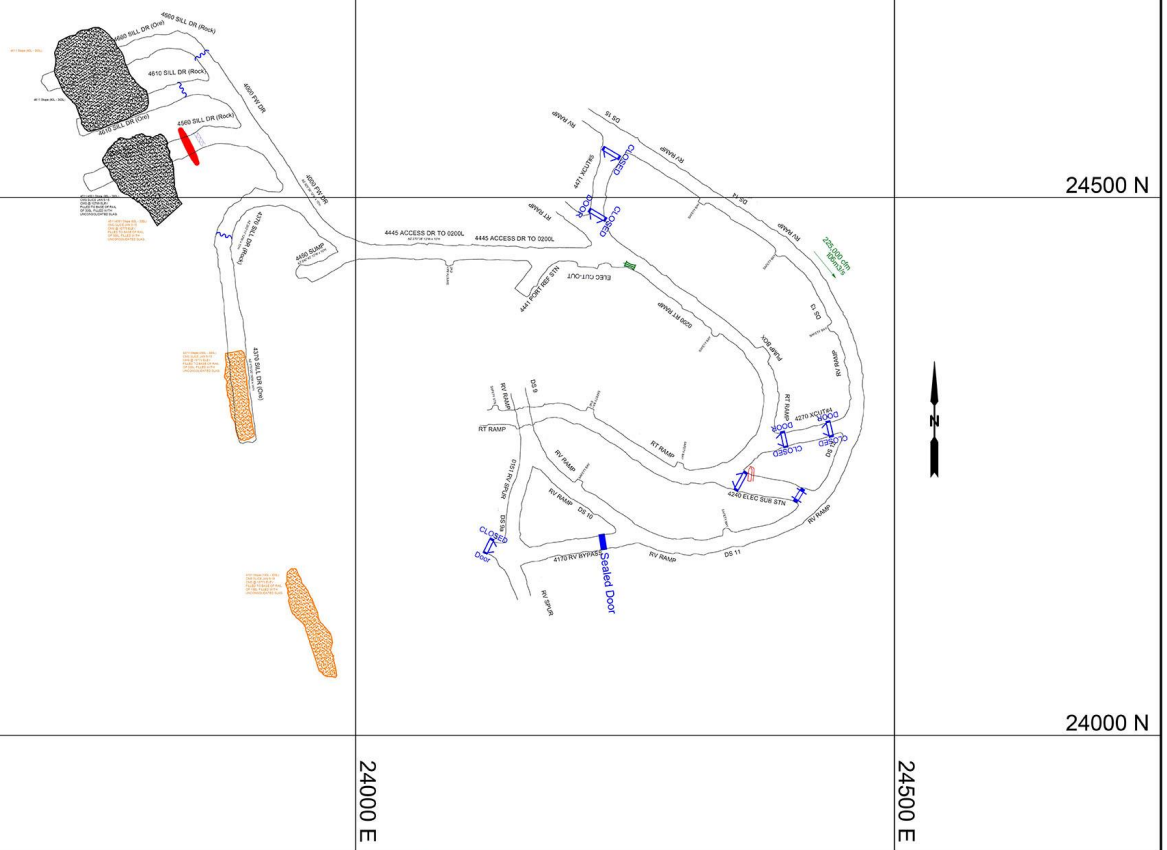
P 16

P 17

P 18

200 LEVEL

VENTILATION LEGEND	
	FAN
	METAL DUCTING
	FLEX DUCTING
	AIR FLOW
U/C	UPCAST
D/C	DOWNCAST
	BULKHEAD
	REGULATOR
	SCREEN BARRICADE
	SWING DOOR
	ROLL DOOR
	VENT CURTAIN
	DOUBLE DOOR
	ESCAPEWAY TO SURFACE
	SPRINKLER
H	HYDRANT & HOSE
	FIRE EXTINGUISHER
	PHONE
OS	OIL STORAGE
FS	FUEL STORAGE
PM	POWDER MAG
FM	FUSE MAG
SWRM	SWITCH ROOM
MPC	MINE POWER CENTRE
	RAISE UP
	RAISE DOWN
	RAISE THROUGH LEVEL



REV.	DESCRIPTION	DATE	DWN BY	CHK'D BY	APP'D BY
1	May 2014 PRINT : Next revision : Nov 2014	May 2014	rt		
2	October 2014 Print: Next Revision: April 2015	10/2014	VS		

VALE — ONTARIO OPERATIONS MINES ENGINEERING DEPARTMENT

CHK'D | APP'D

REV. 1

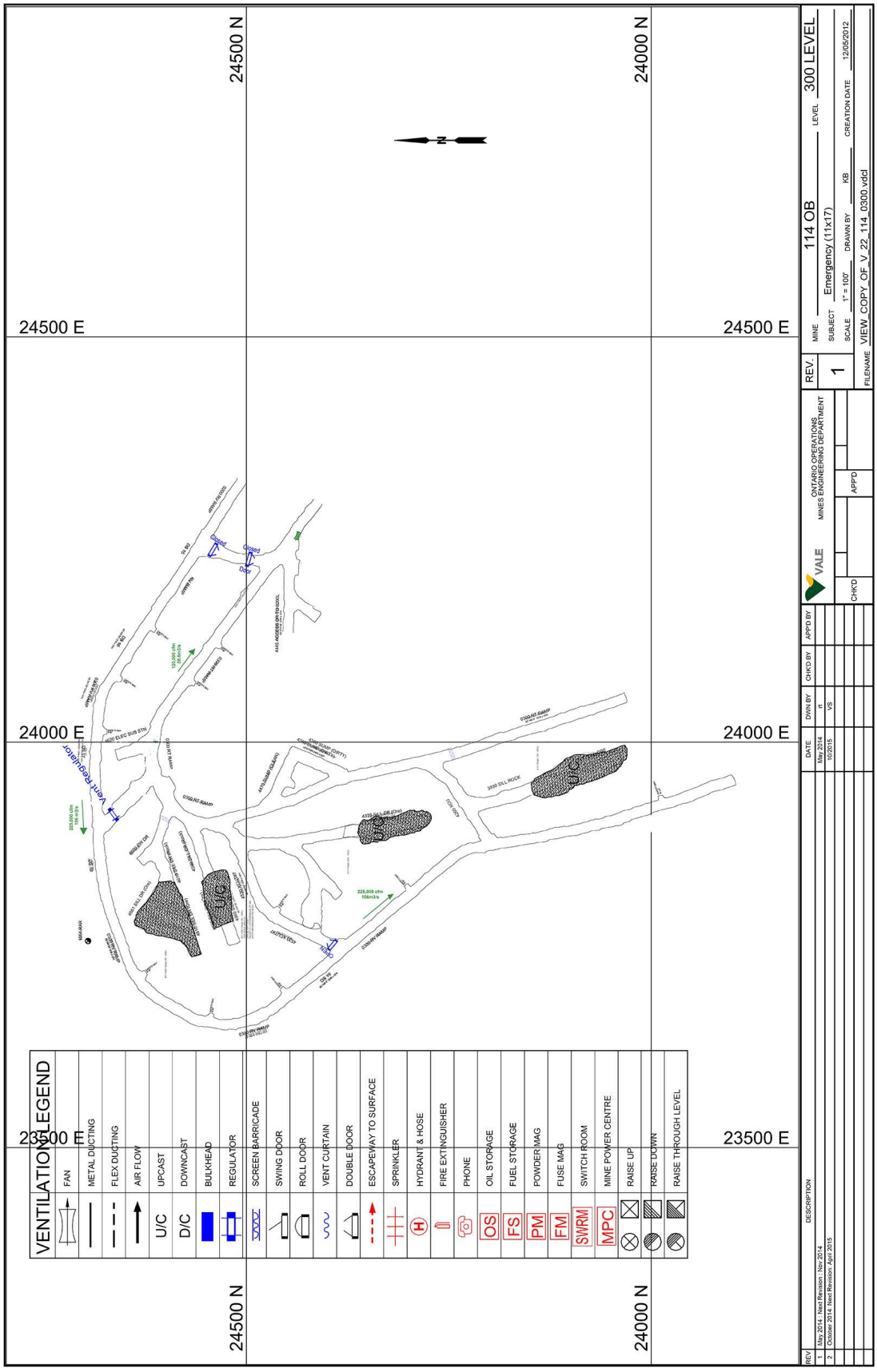
MINE 114 OB LEVEL 200L

SUBJECT Emergency (11x17)

SCALE 1" = 100' DRAWN BY rt CREATION DATE 05/02/2014

FILENAME VIEW_COPY_OF_V_22_114_0200.vdcl

300 LEVEL



MRO Review

NDSEP15

Incident Summary	
Incident ID:	201608230321
Mine:	VALE 114 OB
District:	Competition
Incident Type:	Competition
Mine Rescue Officer:	Nicole Darbaz
Date of Incident:	Aug-23-2016 06:21
Mutual Aid:	Yes
Relief man on call:	Nicole Darbaz
Time MRO Notified:	-
Time MRO Arrived:	-
Time MRO Supervisor Notified:	-
Time First Team Arrived:	-
Time Team Responded:	-
Time All Clear:	-
Injured Workers:	-
Total Teams on Site:	1
Team ID: 20160823032525	22.18:09:17.9970000
Aditional Comments:	-

APPENDIX B – UNDERGROUND FIRE FIGHTING SCENARIO

Master

IMRC
CANADA 2016

INTERNATIONAL MINES RESCUE COMPETITION

SPECIFIC PROBLEM SCORESHEET

UNDERGROUND FIREFIGHTING SCENARIO

EVALUATOR REFERENCE INFORMATION
Electrical Scenario

TEAM Vinacomin

COUNTRY Vietnam

Stop and assess hazard of electrical junction box arcing (5) 5

Assure team safety by maintaining a respectful distance from the arcing electrical box

Team member proceeds past STOP line	(0) _____
Team member proceeds past middle line	(5) _____
Team stops before middle line	(10) 10

Disconnect the power feed to the junction box. (10) 10

Lockout power feed at junction box. (10) 10

Proceed past electrical box, down ramp. (5) 5

Go directly to Shop (5) 5

45

Notes:

TOTAL SCORE 45

EVALUATOR:

Print Name: _____

Signature: _____

98

IMRC

CANADA 2016

INTERNATIONAL MINES RESCUE COMPETITION

SPECIFIC PROBLEM SCORESHEET

UNDERGROUND FIREFIGHTING SCENARIO

#9

EVALUATOR REFERENCE INFORMATION
Electrical Scenario

TEAM Vinacomin

COUNTRY Vietnam

Stop and assess hazard of electrical junction box arcing (5) 5

Assure team safety by maintaining a respectful distance from the arcing electrical box

- Team member proceeds past STOP line (0) ~~0~~
- Team member proceeds past middle line (5) ~~5~~
- Team stops before middle line (10) 10

Disconnect the power feed to the junction box. (10) 10

Lockout power feed at junction box. (10) 10

Proceed past electrical box, down ramp. (5) 5

Go directly to Shop (5) 5

Notes:

Full Merits

TOTAL SCORE 45

EVALUATOR:

Print Name: Marshall, Monns

Signature: [signature] 2016/08/25

IMRC

CANADA 2016

INTERNATIONAL MINES RESCUE COMPETITION

SPECIFIC PROBLEM SCORESHEET

UNDERGROUND FIREFIGHTING SCENARIO

EVALUATOR REFERENCE INFORMATION
Electrical Scenario

TEAM VINACOMIN

COUNTRY VIETNAM

Stop and assess hazard of electrical junction box arcing (5) 5

Assure team safety by maintaining a respectful distance from the arcing electrical box

- Team member proceeds past STOP line (0) _____
- Team member proceeds past middle line (5) _____
- Team stops before middle line (10) 10

Disconnect the power feed to the junction box. (10) 10

Lockout power feed at junction box. (10) 10

Proceed past electrical box, down ramp. (5) 5

Go directly to Shop (5) 5

Notes:

TOTAL SCORE 45

EVALUATOR:

Print Name: RICHARD RUFFOLO

Signature:

8 Master

IMRC
CANADA 2016

INTERNATIONAL MINES RESCUE COMPETITION

SPECIFIC PROBLEM SCORESHEET

UNDERGROUND FIREFIGHTING SCENARIO

EVALUATOR REFERENCE INFORMATION
Fresh Air Base and Briefing Officer

TEAM Vinacomin

COUNTRY Vietnam

The Briefing officer will receive a description of the scenario and an assignment from the Control Group.
The Briefing Officer, after collecting information will develop a plan of action for his team to safely and fully complete the assignment he received from the Control Group. He will then brief the team and relay the assignment and his plan of action.

Assemble information by asking "Control representative" for critical pieces of information.

Status of Ventilation	(y/n) ____
Status of Electrical Installations	(y/n) ____
Status of Compressed Air / Water	(y/n) ____
Availability of Back-up Team	(y/n) ____
Fire Fighting Equipment	(3) 3
Copy of Prints / Maps	(3) 3
History of Hazardous Gasses	(0) 0
Hazards to the team (ground conditions, open holes, etc.)	(3) 0
Refuge Area / Plan for his Team	(3) 0
Communications	(3) 3

The Plan of action will include the following:

- Activate a Mine Rescue Team (2) 2
- Have team prepare and wear SCBA from surface. (2) 2
- Have team take a fire hose and nozzle (2) 2
- Have team take a Foam Fire Extinguisher (2) 2
- Have team take Minimum Equipment, including:
  - -Gas Detector- (2) 2
  - -Kestral Weather Meter (0) 0
  - -Backup Breathing Apparatus for the team (BG4) (2) 2
  - -First Aid Kit for the team (y/n) ____
  - -Radio (2) 2
  - -Basket stretcher (2) 2
  - -Captains notebook (2) 2
  - -Thermal Imaging Camera (2) 2

Team Preparation:

- Prepare minimum equipment (5) 5
- Prepare breathing apparatus (6) 6
- Assemble for briefing (6) 6
- -Each team member is attentive during the briefing (6) 6
- Captain / Team is given the opportunity clarify their assignment (5) 5
- All equipment required to be taken is inspected
  - Thermal Imaging Camera (1) 1
  - Hose / Nozzle (1) 1
  - AFFF extinguisher (1) 1
  - Basket (1) 1
  - Gas monitor (1) 1

Getting The Team Under Oxygen. Each Team Member Including the Captain will:

-Put on their Face Mask (1 each) 6
-Tighten Straps (1 each) 6
-Turn On the Oxygen Cylinder. (1 each) 6

71

The Captain will ensure that every team member, including the Captain, is inspected before entering contamination. Every team member will be checked:

- To ensure that they are fit and OK to proceed (2 each) 12
- Check the SCBA Mask for a good seal (2 each) 12
- Check each members pressure (2 each) 12

Before Entering the Mine, the Captain shall:

-Ensure that they have all Minimum Required Equipment, and all necessary additional equipment, with them. (5) 5

Contact the briefing officer to establish a destination and time limit. (5) 5

After Entering the Mine, the Mine Rescue Team Shall Evaluate Conditions.

- Air Quality
  - CO (2) 2
  - O2 (2) 2
  - Smoke Density (2) 2

When Contamination is identified and the intent is to advance the team from an area of fresh air, into the contaminated atmosphere, the Captain must:

- Check the team in contaminated air (5) 0
- Confirm that each team member is OK to proceed (1 ea) 0
- Report to the Briefing Officer (y/n)

Proceed down ramp (5) 5

At Electrical Scenario:

Report to Briefing Officer before proceeding to shop (5) 5

At Fire Scene:

Notify Briefing Officer fire is out. (5) 5

Receive a time limit back to surface. (5) 0

Contact Briefing Officer when on surface. (5) 5

Receive order to take team "out of Oxygen" then Stand Down (5) 0

72

Shut off oxygen cylinders (ea) (5) 6

Remove breathing apparatus face masks (ea) (5) 6

12

Notes:

TOTAL SCORE 164

EVALUATOR:

Print Name: _____

Signature: _____

#27

IMRC
CANADA 2016

INTERNATIONAL MINES RESCUE COMPETITION

SPECIFIC PROBLEM SCORESHEET

UNDERGROUND FIREFIGHTING SCENARIO

EVALUATOR REFERENCE INFORMATION
Fresh Air Base and Briefing Officer

TEAM VINACOMIN

COUNTRY VIETNAM.

The Briefing officer will receive a description of the scenario and an assignment from the Control Group.
The Briefing Officer, after collecting information will develop a plan of action for his team to safely and fully complete the assignment he received from the Control Group. He will then brief the team and relay the assignment and his plan of action.

Assemble information by asking "Control representative" for critical pieces of information.

Status of Ventilation	(y/n) _____
Status of Electrical Installations	(y/n) _____
Status of Compressed Air / Water	(y/n) _____
Availability of Back-up Team	(y/n) _____
Fire Fighting Equipment	(3) _____
Copy of Prints / Maps	(3) _____
History of Hazardous Gasses	(0) _____
Hazards to the team (ground conditions, open holes, etc.)	(3) _____
Refuge Area / Plan for his Team	(3) _____
Communications	(3) _____

The Plan of action will include the following:

- Activate a Mine Rescue Team (2) _____
- Have team prepare and wear SCBA from surface. (2) _____
- Have team take a fire hose and nozzle (2) _____
- Have team take a Foam Fire Extinguisher (2) _____
- Have team take Minimum Equipment, including:
  - -Gas Detector- (2) _____
  - -Kestral Weather Meter (0) _____
  - -Backup Breathing Apparatus for the team (BG4) (2) _____
  - -First Aid Kit for the team (y/n) _____
  - -Radio (2) _____
  - -Basket stretcher (2) _____
  - -Captains notebook (2) _____
  - -Thermal Imaging Camera (2) _____

Team Preparation:

- Prepare minimum equipment (5) 5
- Prepare breathing apparatus (6) 6
- Assemble for briefing (6) 6
- -Each team member is attentive during the briefing (6) 6
- Captain / Team is given the opportunity clarify their assignment (5) 5
- All equipment required to be taken is inspected
  - Thermal Imaging Camera (1) 1
  - Hose / Nozzle (1) 1
  - AFFF extinguisher (1) 1
  - Basket (1) 1
  - Gas monitor (1) 1

Getting The Team Under Oxygen. Each Team Member Including the Captain will:

-Put on their Face Mask (1 each) 6
-Tighten Straps (1 each) 6
-Turn On the Oxygen Cylinder. (1 each) 6

The Captain will ensure that every team member, including the Captain, is inspected before entering contamination. Every team member will be checked:

- To ensure that they are fit and OK to proceed (2 each) 12
- Check the SCBA Mask for a good seal (2 each) 12
- Check each members pressure (2 each) 12

Before Entering the Mine, the Captain shall:

-Ensure that they have all Minimum Required Equipment, and all necessary additional equipment, with them. (5) 5

Contact the briefing officer to establish a destination and time limit. (5) 5

After Entering the Mine, the Mine Rescue Team Shall Evaluate Conditions.

- Air Quality
  - CO (2) _____
  - O2 (2) _____
  - Smoke Density (2) _____

When Contamination is identified and the intent is to advance the team from an area of fresh air, into the contaminated atmosphere, the Captain must:

- Check the team in contaminated air (5) _____
- Confirm that each team member is OK to proceed (1 ea) ____
- Report to the Briefing Officer (y/n)_____

Proceed down ramp (5) _____

At Electrical Scenario:

Report to Briefing Officer before proceeding to shop (5) _____

At Fire Scene:

Notify Briefing Officer fire is out. (5) _____

Receive a time limit back to surface. (5) _____

Contact Briefing Officer when on surface. (5) _____

Receive order to take team "out of Oxygen" then Stand Down (5) _____

Shut off oxygen cylinders (5) _____

Remove breathing apparatus face masks (5) _____

Notes:

TOTAL SCORE _____

EVALUATOR:

Print Name: ROBERT MARIN

Signature: _____

98

IMRC
CANADA 2016

INTERNATIONAL MINES RESCUE COMPETITION

SPECIFIC PROBLEM SCORESHEET

UNDERGROUND FIREFIGHTING SCENARIO

EVALUATOR REFERENCE INFORMATION
Fresh Air Base and Briefing Officer

Day 3 Team 9

TEAM #9 Vina Comin

COUNTRY Vietnam

The Briefing officer will receive a description of the scenario and an assignment from the Control Group.
The Briefing Officer, after collecting information will develop a plan of action for his team to safely and fully complete the assignment he received from the Control Group. He will then brief the team and relay the assignment and his plan of action.

Assemble information by asking "Control representative" for critical pieces of information.

Status of Ventilation	(y/n) Y
Status of Electrical Installations	(y/n) Y
Status of Compressed Air / Water	(y/n) N
Availability of Back-up Team	(y/n) N
Fire Fighting Equipment	(3) 3
Copy of Prints / Maps	(3) 3
History of Hazardous Gasses	(0) ϕ
Hazards to the team (ground conditions, open holes, etc.)	(3) ϕ
Refuge Area / Plan for his Team	(3) ϕ
Communications	(3) 3

The Plan of action will include the following:

- Activate a Mine Rescue Team (2) Ø
- Have team prepare and wear SCBA from surface. (2) Ø
- Have team take a fire hose and nozzle (2) 2
- Have team take a Foam Fire Extinguisher (2) Ø
- Have team take Minimum Equipment, including:
  - -Gas Detector- (2) 2
  - -Kestral Weather Meter (0) Ø
  - -Backup Breathing Apparatus for the team (BG4) (2) Ø
  - -First Aid Kit for the team (y/n) N
  - -Radio (2) 2
  - -Basket stretcher (2) Ø
  - -Captains notebook (2) Ø
  - -Thermal Imaging Camera (2) Ø

Team Preparation:

- Prepare minimum equipment (5) N/A
- Prepare breathing apparatus (6) N/A
- Assemble for briefing (6) N/A
- -Each team member is attentive during the briefing (6) N/A
- Captain / Team is given the opportunity clarify their assignment (5) N/A
- All equipment required to be taken is inspected
  - Thermal Imaging Camera (1) N/A
  - Hose / Nozzle (1) N/A
  - AFFF extinguisher (1) N/A
  - Basket (1) N/A
  - Gas monitor (1) N/A

Getting The Team Under Oxygen. Each Team Member Including the Captain will:

-Put on their Face Mask (1 each) N/A
-Tighten Straps (1 each) N/A
-Turn On the Oxygen Cylinder. (1 each) N/A

The Captain will ensure that every team member, including the Captain, is inspected before entering contamination. Every team member will be checked:

- To ensure that they are fit and OK to proceed (2 each) N/A
- Check the SCBA Mask for a good seal (2 each) N/A
- Check each members pressure (2 each) N/A

Before Entering the Mine, the Captain shall:

-Ensure that they have all Minimum Required Equipment, and all necessary additional equipment, with them. (5) N/A

Contact the briefing officer to establish a destination and time limit. (5) ϕ

After Entering the Mine, the Mine Rescue Team Shall Evaluate Conditions.

- Air Quality
  - CO (2) 2
  - O2 (2) 2
  - Smoke Density (2) 2

When Contamination is identified and the intent is to advance the team from an area of fresh air, into the contaminated atmosphere, the Captain must:

- Check the team in contaminated air (5) N/A
- Confirm that each team member is OK to proceed (1 ea) N/A
- Report to the Briefing Officer (y/n) Y

Proceed down ramp (5) 5

At Electrical Scenario:

Report to Briefing Officer before proceeding to shop (5) √ 5

At Fire Scene:

Notify Briefing Officer fire is out. (5) 5

Receive a time limit back to surface. (5) ϕ

Contact Briefing Officer when on surface. (5) 5

Receive order to take team "out of Oxygen" then Stand Down (5) ϕ

Shut off oxygen cylinders (5) 6

Remove breathing apparatus face masks (5) 6

Notes:

No mention of using extinguisher on fuel.
tried to extinguish fire with no success.

Used water to extinguish fire

TOTAL SCORE _____

EVALUATOR:

Print Name: Justin Roy

Signature: _____

#27

IMRC
CANADA 2016

INTERNATIONAL MINES RESCUE COMPETITION

SPECIFIC PROBLEM SCORESHEET

UNDERGROUND FIREFIGHTING SCENARIO

EVALUATOR REFERENCE INFORMATION
Fresh Air Base and Briefing Officer

TEAM Vinacomin

COUNTRY Vietnam

The Briefing officer will receive a description of the scenario and an assignment from the Control Group.
The Briefing Officer, after collecting information will develop a plan of action for his team to safely and fully complete the assignment he received from the Control Group. He will then brief the team and relay the assignment and his plan of action.

Assemble information by asking "Control representative" for critical pieces of information.

Status of Ventilation	(y/n) _____
Status of Electrical Installations	(y/n) _____
Status of Compressed Air / Water	(y/n) _____
Availability of Back-up Team	(y/n) _____
Fire Fighting Equipment	(3) _____
Copy of Prints / Maps	(3) _____
History of Hazardous Gasses	(0) _____
Hazards to the team (ground conditions, open holes, etc.)	(3) _____
Refuge Area / Plan for his Team	(3) _____
Communications	(3) _____

The Plan of action will include the following:

- Activate a Mine Rescue Team (2) _____
- Have team prepare and wear SCBA from surface. (2) _____
- Have team take a fire hose and nozzle (2) _____
- Have team take a Foam Fire Extinguisher (2) _____
- Have team take Minimum Equipment, including:
  - -Gas Detector- (2) _____
  - -Kestral Weather Meter (0) _____
  - -Backup Breathing Apparatus for the team (BG4) (2) _____
  - -First Aid Kit for the team (y/n) _____
  - -Radio (2) _____
  - -Basket stretcher (2) _____
  - -Captains notebook (2) _____
  - -Thermal Imaging Camera (2) _____

Team Preparation:

- Prepare minimum equipment (5) 5
- Prepare breathing apparatus (6) 6
- Assemble for briefing (6) 6
- -Each team member is attentive during the briefing (6) 6
- Captain / Team is given the opportunity clarify their assignment (5) 5
- All equipment required to be taken is inspected
  - Thermal Imaging Camera (1) 1
  - Hose / Nozzle (1) 1
  - AFFF extinguisher (1) 1
  - Basket (1) 1
  - Gas monitor (1) 1

Getting The Team Under Oxygen. Each Team Member Including the Captain will:

-Put on their Face Mask (1 each) 6
-Tighten Straps (1 each) 6
-Turn On the Oxygen Cylinder. (1 each) 6

The Captain will ensure that every team member, including the Captain, is inspected before entering contamination. Every team member will be checked:

- To ensure that they are fit and OK to proceed (2 each) 12
- Check the SCBA Mask for a good seal (2 each) 12
- Check each members pressure (2 each) 12

Before Entering the Mine, the Captain shall:

-Ensure that they have all Minimum Required Equipment, and all necessary additional equipment, with them. (5) 5

Contact the briefing officer to establish a destination and time limit. (5) 5

After Entering the Mine, the Mine Rescue Team Shall Evaluate Conditions.

- Air Quality
  - CO (2) _____
  - O2 (2) _____
  - Smoke Density (2) _____

When Contamination is identified and the intent is to advance the team from an area of fresh air, into the contaminated atmosphere, the Captain must:

- Check the team in contaminated air (5) _____
- Confirm that each team member is OK to proceed (1 ea) _____
- Report to the Briefing Officer (y/n)_____

Proceed down ramp (5) _____

At Electrical Scenario:

Report to Briefing Officer before proceeding to shop (5) _____

At Fire Scene:

Notify Briefing Officer fire is out. (5) _____

Receive a time limit back to surface. (5) _____

Contact Briefing Officer when on surface. (5) _____

Receive order to take team "out of Oxygen" then Stand Down (5) _____

Shut off oxygen cylinders (5) _____

Remove breathing apparatus face masks (5) _____

Notes:

TOTAL SCORE _____

EVALUATOR:

Print Name: George Pondoux

Signature: _____

IMRC

CANADA 2016

INTERNATIONAL MINES RESCUE COMPETITION

SPECIFIC PROBLEM SCORESHEET

UNDERGROUND FIREFIGHTING SCENARIO

EVALUATOR REFERENCE INFORMATION
Fresh Air Base and Briefing Officer

#27

TEAM Vinacomin

COUNTRY Vietnam

The Briefing officer will receive a description of the scenario and an assignment from the Control Group.
The Briefing Officer, after collecting information will develop a plan of action for his team to safely and fully complete the assignment he received from the Control Group. He will then brief the team and relay the assignment and his plan of action.

Assemble information by asking "Control representative" for critical pieces of information.

Status of Ventilation	(y/n) _____
Status of Electrical Installations	(y/n) _____
Status of Compressed Air / Water	(y/n) _____
Availability of Back-up Team	(y/n) _____
Fire Fighting Equipment	(3) _____
Copy of Prints / Maps	(3) _____
History of Hazardous Gasses	(0) _____
Hazards to the team (ground conditions, open holes, etc.)	(3) _____
Refuge Area / Plan for his Team	(3) _____
Communications	(3) _____

The Plan of action will include the following:

- Activate a Mine Rescue Team (2) 2
- Have team prepare and wear SCBA from surface. (2) 2
- Have team take a fire hose and nozzle (2) 2
- Have team take a Foam Fire Extinguisher (2) 2
- Have team take Minimum Equipment, including:
  - -Gas Detector- (2) 2
  - -Kestral Weather Meter (0) 0
  - -Backup Breathing Apparatus for the team (BG4) (2) 2
  - -First Aid Kit for the team (y/n) ~~____~~
  - -Radio (2) 2
  - -Basket stretcher (2) 2
  - -Captains notebook (2) 2
  - -Thermal Imaging Camera (2) 2

Team Preparation:

- Prepare minimum equipment (5) 5
- Prepare breathing apparatus yes (6) 6
- Assemble for briefing yes (6) 6
- -Each team member is attentive during the briefing (6) 6
- Captain / Team is given the opportunity clarify their assignment (5) 5
- All equipment required to be taken is inspected
  - Thermal Imaging Camera (1) 1
  - Hose / Nozzle (1) 1
  - AFFF extinguisher (1) 1
  - Basket (1) 1
  - Gas monitor (1) 1

Getting The Team Under Oxygen. Each Team Member Including the Captain will:

-Put on their Face Mask (1 each) _____
-Tighten Straps (1 each) _____
-Turn On the Oxygen Cylinder. (1 each) _____

The Captain will ensure that every team member, including the Captain, is inspected before entering contamination. Every team member will be checked:

- To ensure that they are fit and OK to proceed (2 each) 12
- Check the SCBA Mask for a good seal (2 each) 12
- Check each members pressure (2 each) 12

Before Entering the Mine, the Captain shall:

-Ensure that they have all Minimum Required Equipment, and all necessary additional equipment, with them. (5) ~~0~~ 5

Contact the briefing officer to establish a destination and time limit. (5) ~~0~~ 5

After Entering the Mine, the Mine Rescue Team Shall Evaluate Conditions.

- Air Quality
  - CO 20 ppm (2) 2
  - O2 20.9 (2) 2
  - Smoke Density (2) 2

10'-12' vis

When Contamination is identified and the intent is to advance the team from an area of fresh air, into the contaminated atmosphere, the Captain must:

- Check the team in contaminated air (5) 0
- Confirm that each team member is OK to proceed (1 ea) 0
- Report to the Briefing Officer (y/n) Y

Obvious have not used link lines

Proceed down ramp (5) 5

At Electrical Scenario:

Report to Briefing Officer before proceeding to shop (5) _____

At Fire Scene:

Notify Briefing Officer fire is out. (5) _____

Receive a time limit back to surface. (5) _____

Contact Briefing Officer when on surface. (5) _____

Receive order to take team "out of Oxygen" then Stand Down (5) _____

Shut off oxygen cylinders (5) _____

Remove breathing apparatus face masks (5) _____

Notes:

TOTAL SCORE _____

EVALUATOR:

Print Name: Lee Morrison

Signature: Lee C. Morrison

Master

IMRC
CANADA 2016

INTERNATIONAL MINES RESCUE COMPETITION

SPECIFIC PROBLEM SCORESHEET

UNDERGROUND FIREFIGHTING SCENARIO

EVALUATOR REFERENCE INFORMATION
Spill and Firefighting

TEAM Vinacomin

COUNTRY Vietnam

Locate and evaluate spill of Flammable Liquid. (5) 5

Apply foam to spill to contain vapours. (10) 0

Apply foam indirectly to spill so that no liquid is splashed from the spill containment area. (roll on from in front of spill or arc so that it falls lightly or bounce off of an object so that it runs onto the spill) (10) 0

Do not disturb foam cover once it is applied. (10) 0

Report to Briefing Officer before proceeding past. (5) 5

Locate and evaluate the Fire past the spill. (10) 10

Proceed past Spill Hazard Only After foam cover suitably applied. (10) 0

The Team will identify "HEAT" after they pass the fuel spill. They must locate a water header and protect themselves from the heat using a fire hose with fog spray before advancing.

20

Recognize heat as a hazard and notify Briefing Officer (10) 0

Locate water header and test for flow. (5) 5

Hose #1

Roll out fire hose without advancing into the Heat. (3) 0

Have no kinks in the fire hose (3) 3

Connect fire hose to water header. (3) 3

Install nozzle on fire hose. (5) 5

Turn on water to charge fire hose. (5) 5

Set fire nozzle to fog pattern before advancing into heat. (10) 0

The fire hose with fog will protect the team from the Heat so that they can proceed toward the fire, but this will only allow them to explore up to the fire as any attempt to switch to a fire fighting stream will expose them again to intense heat. A second hose will be required. One to protect the team with fog and one to fight the fire. If a team did not use the foam extinguisher at the spill they may still have it available for fire attack. Merits may be awarded for fire attack with a second fire hose or with foam extinguisher, NOT Both.

Fog curtain not dropped until flames extinguished and heat reduced. (10) 0

2nd Fire Hose used:

Use a second hose and nozzle for fire attack (10) 0

Roll out fire hose without advancing into the Heat. (3) 0

Have no kinks in the fire hose (3) 0

Connect fire hose to water header. (3) 0

21

Install nozzle on fire hose. (5) 0

Turn on water to charge fire hose. (5) 0

Set fire nozzle to stream pattern before advancing into heat. (10) 0

Check for function before advancing. (5) 0

Advance and fight fire from behind fog curtain. (10) 0

AFFF Extinguisher used:
Use a foam extinguisher for fire attack (10) 10

Before advancing with the extinguisher to fight the fire, check the extinguisher for function and range by activating a short burst from the extinguisher. (20) 0

Apply extinguishing agent until the fire is fully extinguished. (stir coals with straight stream, scaling bar, etc.) (10) 5

Confirm that the fire is out (heat, smoke, glowing coals etc.) (10) 0

Check extinguished fire with Thermal Imaging Camera (5) 0

Evaluate air quality:

- Air Quality
  - CO (2) 2
  - O2 (2) 2
  - Smoke Density (2) 2

Report to Briefing Officer before leaving shop (5) 5

Reassess fuel spill when passing. (5) 0

Reassess electrical box when passing. (5) 0

26

Notes:

TOTAL SCORE 67

EVALUATOR:

Print Name: _____

Signature: _____

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CANADA 2016

INTERNATIONAL MINES RESCUE COMPETITION

SPECIFIC PROBLEM SCORESHEET

UNDERGROUND FIREFIGHTING SCENARIO

EVALUATOR REFERENCE INFORMATION
Spill and Firefighting

TEAM VINACOMIN

COUNTRY VIETNAM

Locate and evaluate spill of Flammable Liquid. (5) 5

Apply foam to spill to contain vapours. (10) 0

Apply foam indirectly to spill so that no liquid is splashed from the spill containment area. (roll on from in front of spill or arc so that it falls lightly or bounce off of an object so that it runs onto the spill) (10) 0

Do not disturb foam cover once it is applied. (10) 0

Report to Briefing Officer before proceeding past. (5) 5

Locate and evaluate the Fire past the spill. (10) 10

Proceed past Spill Hazard Only After foam cover suitably applied. (10) 0

The Team will identify "HEAT" after they pass the fuel spill. They must locate a water header and protect themselves from the heat using a fire hose with fog spray before advancing.

20

Recognize heat as a hazard and notify Briefing Officer (10) 0

Locate water header and test for flow. (5) 5

Hose #1

Roll out fire hose without advancing into the Heat. (3) 0

Have no kinks in the fire hose (3) 3

Connect fire hose to water header. (3) 3

Install nozzle on fire hose. (5) 5

Turn on water to charge fire hose. (5) 5

Set fire nozzle to fog pattern before advancing into heat. (10) 0

FOG NOT USED

The fire hose with fog will protect the team from the Heat so that they can proceed toward the fire, but this will only allow them to explore up to the fire as any attempt to switch to a fire fighting stream will expose them again to intense heat. A second hose will be required. One to protect the team with fog and one to fight the fire. If a team did not use the foam extinguisher at the spill they may still have it available for fire attack. Merits may be awarded for fire attack with a second fire hose or with foam extinguisher, NOT Both.

Fog curtain not dropped until flames extinguished and heat reduced. (10) 0

2nd Fire Hose used:

Use a second hose and nozzle for fire attack (10) 0

Roll out fire hose without advancing into the Heat. (3) 0

Have no kinks in the fire hose (3) 0

Connect fire hose to water header. (3) 0

Install nozzle on fire hose. (5) 0

Turn on water to charge fire hose. (5) 0

Set fire nozzle to stream pattern before advancing into heat. (10) 0

Check for function before advancing. (5) 0

Advance and fight fire from behind fog curtain. (10) 0

AFFF Extinguisher used:
Use a foam extinguisher for fire attack (10) 10

Before advancing with the extinguisher to fight the fire, check the extinguisher for function and range by activating a short burst from the extinguisher. (20) 0

Apply extinguishing agent until the fire is fully extinguished. (stir coals with straight stream, scaling bar, etc.) COALS NO STIRRED (10) 5

Confirm that the fire is out (heat, smoke, glowing coals etc.) (10) 0

Check extinguished fire with Thermal Imaging Camera (5) 0

Evaluate air quality:

- Air Quality
  - CO (2) 2
  - O2 (2) 2
  - Smoke Density (2) 2

Report to Briefing Officer before leaving shop (5) 5

Reassess fuel spill when passing. (5) 0

Reassess electrical box when passing. (5) 0

26

Notes:
- CAPTAIN SEEMED TO IGNORE REST OF TEAM
- CAPTAIN WENT STRAIGHT TO FIRE WITHOUT ANY PROTECTION (AFFF OR WATER)
- GOOD COMM. AMONGST TEAM (NOT CAPT.)
- TEAM MOVED QUICKLY SHOWES URGENCY

TOTAL SCORE 67

EVALUATOR:

Print Name: KIRBY BUCHANAN

Signature: Kby Buchanan

IMRC

INTERNATIONAL MINES RESCUE COMPETITION

CANADA 2016

SPECIFIC PROBLEM SCORESHEET

UNDERGROUND FIREFIGHTING SCENARIO

EVALUATOR REFERENCE INFORMATION
Spill and Firefighting

TEAM Vinacomin

COUNTRY Vietnam

Locate and evaluate spill of Flammable Liquid. (5) 5

Apply foam to spill to contain vapours. (10) ~~0~~

Apply foam indirectly to spill so that no liquid is splashed from the spill containment area. (roll on from in front of spill or arc so that it falls lightly or bounce off of an object so that it runs onto the spill) (10) ~~0~~

Do not disturb foam cover once it is applied. (10) ~~0~~

Report to Briefing Officer before proceeding past. (5) 5

Locate and evaluate the Fire past the spill. (10) 10

Proceed past Spill Hazard Only After foam cover suitably applied. (10) ~~0~~

The Team will identify "HEAT" after they pass the fuel spill. They must locate a water header and protect themselves from the heat using a fire hose with fog spray before advancing.

20

Team ID'ed spill, hose, nozzle, heat. captain ignored team and moved into heat to explore

Recognize heat as a hazard and notify Briefing Officer (10) 0

Locate water header and test for flow. (5) 5

Hose #1

Roll out fire hose without advancing into the Heat. (3) 0

Have no kinks in the fire hose (3) 3

Connect fire hose to water header. (3) 3

Install nozzle on fire hose. (5) 5

Turn on water to charge fire hose. (5) 5

Set fire nozzle to fog pattern before advancing into heat. (10) 10

NO Fog ever

The fire hose with fog will protect the team from the Heat so that they can proceed toward the fire, but this will only allow them to explore up to the fire as any attempt to switch to a fire fighting stream will expose them again to intense heat. A second hose will be required. One to protect the team with fog and one to fight the fire. If a team did not use the foam extinguisher at the spill they may still have it available for fire attack. Merits may be awarded for fire attack with a second fire hose or with foam extinguisher, NOT Both.

Fog curtain not dropped until flames extinguished and heat reduced. (10) 0

2nd Fire Hose used:

Use a second hose and nozzle for fire attack (10) 0

Roll out fire hose without advancing into the Heat. (3) 0

Have no kinks in the fire hose (3) 0

Connect fire hose to water header. (3) 0

21

Install nozzle on fire hose. (5) 0

Turn on water to charge fire hose. (5) 0

Set fire nozzle to stream pattern before advancing into heat. (10) 0

Check for function before advancing. (5) 0

Advance and fight fire from behind fog curtain. (10) 0

AFFF Extinguisher used:
Use a foam extinguisher for fire attack (10) 10

Before advancing with the extinguisher to fight the fire, check the extinguisher for function and range by activating a short burst from the extinguisher. (20) 0

Apply extinguishing agent until the fire is fully extinguished. (stir coals with straight stream, scaling bar, etc.) No str (10) 5

Confirm that the fire is out (heat, smoke, glowing coals etc.) (10) 0

Check extinguished fire with Thermal Imaging Camera (5) 0

Evaluate air quality:

- Air Quality
  - CO check BO (2) 2
  - O2 (2) 2
  - Smoke Density (2) 2

Report to Briefing Officer before leaving shop (5) 5

Reassess fuel spill when passing. (5) 0

Reassess electrical box when passing. (5) 0

~~31~~ 26

Notes:

- Team very observant but captain did not fully utilize team input.
- Very fast team movements left #6 man behind on retreat.

TOTAL SCORE 67

EVALUATOR:

Print Name: Andrew Jorgensen

Signature:

Thus 25/8. (9)

98

16.55

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CANADA 2016

INTERNATIONAL MINES RESCUE COMPETITION

SPECIFIC PROBLEM SCORESHEET

UNDERGROUND FIREFIGHTING SCENARIO

EVALUATOR REFERENCE INFORMATION
Spill and Firefighting

TEAM Vinacomin.

COUNTRY Vietnam

Locate and evaluate spill of Flammable Liquid. (5) 5 ✓

Apply foam to spill to contain vapours. (10) 0

Apply foam indirectly to spill so that no liquid is splashed from the spill containment area. (roll on from in front of spill or arc so that it falls lightly or bounce off of an object so that it runs onto the spill) (10) 0

Do not disturb foam cover once it is applied. (10) 0

Report to Briefing Officer before proceeding past. (5) 5 ✓

Locate and evaluate the Fire past the spill. (10) 10

Proceed past Spill Hazard Only After foam cover suitably applied. (10) 0 ✗

The Team will identify "HEAT" after they pass the fuel spill. They must locate a water header and protect themselves from the heat using a fire hose with fog spray before advancing. (20)

Cone pad spill – then crew back + moved Del drums. – walked thru fuel spill / Capt advanced thru first sign + 2nd sign to assess fire – Hyd not tested, rolled hose towards fire (spill line (eventually), Stretcher left in middle of rdwy – trip hazard.

Recognize heat as a hazard and notify Briefing Officer (10) 0 X

Did not identify - walked through multiple signs.

Locate water header and test for flow. (5) 5 X

Hose #1

Roll out fire hose without advancing into the Heat. (3) 0 X

Have no kinks in the fire hose (3) 3 ✓

Connect fire hose to water header. (3) 3 ✓

Install nozzle on fire hose. (5) 5 ✓

Turn on water to charge fire hose. (5) 5 ✓

Set fire nozzle to fog pattern before advancing into heat. (10) 0

Fog not used at all

The fire hose with fog will protect the team from the Heat so that they can proceed toward the fire, but this will only allow them to explore up to the fire as any attempt to switch to a fire fighting stream will expose them again to intense heat. A second hose will be required. One to protect the team with fog and one to fight the fire. If a team did not use the foam extinguisher at the spill they may still have it available for fire attack. Merits may be awarded for fire attack with a second fire hose or with foam extinguisher, NOT Both.

Fog curtain not dropped until flames extinguished and heat reduced. (10) 0 X

2nd Fire Hose used: 1 hose only

Use a second hose and nozzle for fire attack (10) 0

Roll out fire hose without advancing into the Heat. (3) 0

Have no kinks in the fire hose (3) 0

Connect fire hose to water header. (3) 0

Install nozzle on fire hose. (5) 0

Turn on water to charge fire hose. (5) 0

Set fire nozzle to stream pattern before advancing into heat. (10) 0

Check for function before advancing. (5) 0

Advance and fight fire from behind fog curtain. (10) 0

AFFF Extinguisher used:
Use a foam extinguisher for fire attack (10) 10

Before advancing with the extinguisher to fight the fire, check the extinguisher for function and range by activating a short burst from the extinguisher. (20) 0
Not checked

Apply extinguishing agent until the fire is fully extinguished. (stir coals with straight stream, scaling bar, etc.) Not Stirred (10) 5

Confirm that the fire is out (heat, smoke, glowing coals etc.) (10) 0
Not confirmed

Check extinguished fire with Thermal Imaging Camera (5) 0
Not used to confirm

Evaluate air quality:
- Air Quality
  - CO (2) 2
  - O2 (2) 2
  - Smoke Density (2) 2

Report to Briefing Officer before leaving shop (5) 5

Reassess fuel spill when passing. (5) 0

Reassess electrical box when passing. (5) 0

26

Notes:

Improvement opportunities.
↳ Captain appeared to not fully utilize team members input.
↳ Improved safety to team members by use of fog spray for protection + advance towards fire using fog to push back heat + shield team member.
↳ Roll hose away from fire.
↳ Consider leaving stretcher on ae side to keep minimize potential trip hazards.

20
21
26
67

TOTAL SCORE

67

EVALUATOR:

Print Name: Shan Dodo

Signature: Dodo.

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CANADA 2016

INTERNATIONAL MINES RESCUE COMPETITION

SPECIFIC PROBLEM SCORESHEET

UNDERGROUND FIREFIGHTING SCENARIO

EVALUATOR REFERENCE INFORMATION
Spill and Firefighting

TEAM Vinacomin

COUNTRY Vietnam

Locate and evaluate spill of Flammable Liquid. (5) 5

Apply foam to spill to contain vapours. (10) —

Apply foam indirectly to spill so that no liquid is splashed from the spill containment area. (roll on from in front of spill or arc so that it falls lightly or bounce off of an object so that it runs onto the spill) (10) —

Do not disturb foam cover once it is applied. (10) —

Report to Briefing Officer before proceeding past. (5) 5

Locate and evaluate the Fire past the spill. (10) 10

Proceed past Spill Hazard Only After foam cover suitably applied. (10) —

The Team will identify "HEAT" after they pass the fuel spill. They must locate a water header and protect themselves from the heat using a fire hose with fog spray before advancing.

20

Recognize heat as a hazard and notify Briefing Officer (10) —

Locate water header and test for flow. (5) 5

Hose #1

Roll out fire hose without advancing into the Heat. (3) —

Have no kinks in the fire hose (3) 3

Connect fire hose to water header. (3) 3

Install nozzle on fire hose. (5) 5

Turn on water to charge fire hose. (5) 5

Set fire nozzle to fog pattern before advancing into heat. (10) —

The fire hose with fog will protect the team from the Heat so that they can proceed toward the fire, but this will only allow them to explore up to the fire as any attempt to switch to a fire fighting stream will expose them again to intense heat. A second hose will be required. One to protect the team with fog and one to fight the fire. If a team did not use the foam extinguisher at the spill they may still have it available for fire attack. Merits may be awarded for fire attack with a second fire hose or with foam extinguisher, NOT Both.

Fog curtain not dropped until flames extinguished and heat reduced. (10) —

2nd Fire Hose used:

Use a second hose and nozzle for fire attack (10) —

Roll out fire hose without advancing into the Heat. (3) —

Have no kinks in the fire hose (3) —

Connect fire hose to water header. (3) —

21

Install nozzle on fire hose. (5) ✓

Turn on water to charge fire hose. (5) ✓

Set fire nozzle to stream pattern before advancing into heat. (10) ✓

Check for function before advancing. (5) ✓

Advance and fight fire from behind fog curtain. (10) ✓

AFFF Extinguisher used:
Use a foam extinguisher for fire attack (10) 10

Before advancing with the extinguisher to fight the fire, check the extinguisher for function and range by activating a short burst from the extinguisher. (20) ✓

Apply extinguishing agent until the fire is fully extinguished. (stir coals with straight stream, scaling bar, etc.) no stir (10) 5

Confirm that the fire is out (heat, smoke, glowing coals etc.) (10) ✓

Check extinguished fire with Thermal Imaging Camera (5) ✓

Evaluate air quality:

- Air Quality
  - CO (2) 2
  - O2 (2) 2
  - Smoke Density (2) 2

Report to Briefing Officer before leaving shop (5) 5

Reassess fuel spill when passing. (5) ✓

Reassess electrical box when passing. (5) ✓

26

31

Notes:

TOTAL SCORE 67

EVALUATOR: Mike Dudar

Print Name: Durrell Bullard

Signature: DBullard

IMRC

CANADA 2016

INTERNATIONAL MINES RESCUE COMPETITION

Team Assignment (for the Briefing Officer)

The Incident Command Resource Group has been assembled because a fire was reported by a worker in the shop area. He and all other underground personnel are out of the mine.

The information we have is:

- The driver encountered smoke and lost control of his vehicle on the ramp.
- He reported that he hit several things along the ramp including two drums of fuel that are now leaking, before he came to rest in the shop.
- There is a small fire near some wooden pallets in the shop. He did not attempt to extinguish it.
- He has come to surface and been sent to hospital due to smoke inhalation.

Your assignment is to:

- Collect all the information you require from the Command Representative and develop a Plan of Action for your team to complete this assignment.
- Have Command review and approve your plan of action, you will address the team and relay the plan of action to them. You will then remain on surface and act as a contact person for the team.
- Prepare a Mine Rescue Team and have them locate and extinguish the fire. The team is to advise you of any hazards that they encounter and make those hazards safe before going past them. The team will wear appropriate breathing apparatus as protection from the known hazard of smoke and atmospheric contaminants.

- You are to establish a destination with the team and a reasonable time for them to reach it. No destination shall be passed without establishing a new destination and time limit.

Day 3 Team 9 Vinacomin
Vietnam

4:15	Interpretation begins
4:18	Questions begin
4:26	Ready for Briefing - Briefing begins
4:31	Briefing done.
4:32	going to portal
4:34	Arrived at portal
4:35	getting under O_2
4:38	Team is under O_2
4:40	Team enters the portal and reports values
4:48	Team reports Barrel and electrical panel shut off & locked
4:55	Team is at intersection
4:58	Team is at the fuel barrels
5:00	Team finds water header & fire
5:02	Team is getting ready to fight the fire BO gave orders to remove barrels and make area safe.
5:04	Fire is reported to be out
5:06	Team checks vehicle for leaks - No leaks
5:07	Team is leaving out of the mine
5:11	Team is on surface
5:13	Team is out of O_2

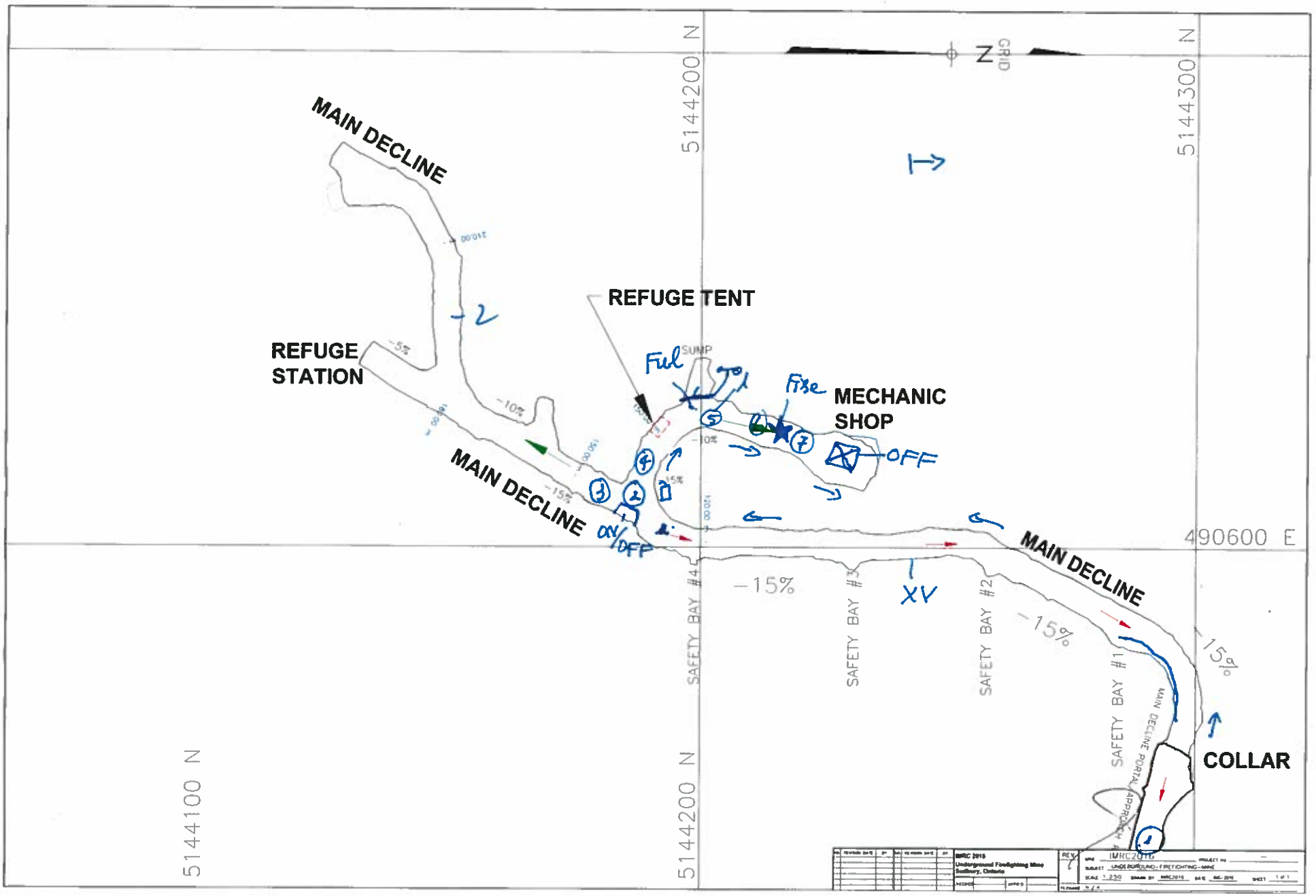
16h45ph.

O_2 Max 200
Min 190
17h7' max 175
min 160

BRIEFING OFFICER'S REPORT

					Time Under O_2:			Briefing Officer:		
					Team No.: VIET NAM			Date: 25/8/2016		Page of
	Captain:				Mine: VINACOMIN			M/R Officer:		
	Time	Location	Smoke	CO	O_2	CH_4	Team	Time	Location	Report
1	16h35	Cổng lò	yes	20	20,9	0				
2	16h45'	Ngã ba	yes	20	20,9	0				
3	16h50		yes	10	20,9	0				
4	16h52		yes	10	20,9	0				
5	16h58		yes	20	20,9	0				
6	17h00		yes	34	20,9	0				
7	17h05		yes	62	20,9	0				Cuối ca

May '06


MAIN DECLINE
REFUGE TENT
REFUGE STATION
SUMP
Fuel
Fire
MECHANIC SHOP
OFF
MAIN DECLINE
ON/OFF
MAIN DECLINE
490600 E
SAFETY BAY #4
SAFETY BAY #3
SAFETY BAY #2
SAFETY BAY #1
-15%
-10%
-5%
XV
COLLAR
5144100 N
5144200 N
5144300 N
GRID N
IMRC2015

APPENDIX C – FIRST AID SCENARIO

Did not Complete.

APPENDIX D – HIGH ANGLE ROPE RESCUE SCENARIO

Did not Complete.

APPENDIX E – THEORY ASSESSMENT

2016 IMRC - Tuesday, August 23, 2016

Group 1 - 10:30	1st Attempt	x 2 pts	2nd Attempt	x 1 pts	Incorrect	TOTAL SCORE
State Militarized Mine Rescue Squad	9	18	4	4	7	**22**
Guizhou Yonggui Energy Company	6	12	4	4	10	**16**
China Pingmei Shenma Group	7	14	2	2	11	**16**
Shannxi Coal and Chemical Industry	13	26	4	4	3	**30**
Group 2 - 12:30PM						
Bytom, Weglokos Kraj	14	28	3	3	3	**31**
Scorpions Team Katowice	7	14	6	6	7	**20**
Gray Wolfs	7	14	6	6	7	**20**
KGHM White Eagles	14	28	1	1	5	**29**
Tara Mine Rescue	12	24	3	3	5	**27**

2016 IMRC - Wednesday, August 24, 2016

Group 1 - 10:30	1st Attempt	x 2 pts	2nd Attempt	x 1 pts	Incorrect	TOTAL SCORE
Manitoba - Vale Manitoba Operations	8	16	5	5	7	**21**
Sudbury Basin Cobras, KGHM Sudbury	15	30	2	2	3	**32**
Vale West Mines, Sudbury	15	30	3	3	2	**33**
MSHA Mine Rescue Emergency Unit 1	15	30	2	2	3	**32**
Group 2 - 12:30PM						
Emercom of Russia	10	20	7	7	3	**27**
JSC <<SUEK>>	8	16	7	7	5	**23**
Singareni	10	20	6	6	4	**26**
Coal India Ltd.	8	16	5	5	7	**21**
Vinacomin Team	8	16	5	5	7	**21**

2016 IMRC - Thursday, August 25, 2016

Group 1 - 10:30	1st Attempt	x 2 pts	2nd Attempt	x 1 pts	Incorrect	TOTAL SCORE
HPB, a.s. Slovakia	13	26	3	3	4	**29**
Peabody Energy Wambo Coal	10	20	5	5	5	**25**
Goldcorp Americas	16	32	1	1	3	**33**
Quebec - Goldex Mine Agnico Eagle	12	24	4	4	4	**28**
Compass Minerals - Goderich Mines	17	34	1	1	2	**35**
Group 2 - 12:30PM						
Saskatoon, Cameco Mcarthur River	12	24	3	3	5	**27**
Kirkland Lake Gold	15	30	3	3	2	**33**
Columbia Coal Company	6	12	2	2	12	**14**
Fiebre de Oro	6	12	6	6	8	**18**

IMRC 2016 Theory Final Scores

Standings	Teams	Score	%	score out of 10	
1	Compass Minerals - Goderich Mines	35	87.5%	8.75	
2	Vale West Mines, Sudbury	33	82.5%	8.25	
3	Goldcorp Americas	33	82.5%	8.25	
4	Kirkland Lake Gold	33	82.5%	8.25	
5	Sudbury Basin Cobras, KGHM Sudbury	32	80.0%	8	
6	MSHA Mine Rescue Emergency Unit 1	32	80.0%	8	
7	Bytom, Weglokos Kraj	31	77.5%	7.75	rewrote
8	Shannxi Coal and Chemical Industry	30	75.0%	7.5	
9	KGHM White Eagles	29	72.5%	7.25	rewrote
10	HPB, a.s. Slovakia	29	72.5%	7.25	
11	Quebec - Goldex Mine Agnico Eagle	28	70.0%	7	
12	Tara Mine Rescue	27	67.5%	6.75	
13	Emercom of Russia	27	67.5%	6.75	
14	Saskatoon, Cameco Mcarthur River	27	67.5%	6.75	
15	Singareni	26	65.0%	6.5	
16	Peabody Energy Wambo Coal	25	62.5%	6.25	
17	JSC <<SUEK>>	23	57.5%	5.75	
18	State Militarized Mine Rescue Squad	22	55.0%	5.5	rewrote
19	Manitoba - Vale Manitoba Operations	21	52.5%	5.25	
20	Coal India Ltd.	21	52.5%	5.25	
21	Vinacomin Team	21	52.5%	5.25	
22	Scorpions Team Katowice	20	50.0%	5	
23	Gray Wolfs	20	50.0%	5	
24	Fiebre de Oro	18	45.0%	4.5	
25	Guizhou Yonggui Energy Company	16	40.0%	4	rewrote
26	China Pingmei Shenma Group	16	40.0%	4	rewrote
27	Columbia Coal Company	14	35.0%	3.5	

Question 26 Original Exam

What is the PRIMARY function of the Counterlung or Breathing bag?

a. Assists the wearer in breathing when he gets tired
b. Collection point of Oxygen enriched diluent
c. Allows the breathing loop to expand and or contract when the user breathes
d. Allows for the collection of water vapour through the use of a water trap

Question 2

The methods of extinguishing of a wet chemical extinguisher are ?

Primary _____
Secondary_____

a. Cooling
b. Chain inhibition
1- c. Oxygen depletion
2- d. Vapour suppression
e. Heat transfer cooling
f. Cooling

Can we click and drag these into place like you did with the ropes question?

Question 3

What is the stream reach of this fire extinguisher?

a. 30-40 ft (9.14-12.19 m)
b. 4-6 ft (1.22-1.83 m)
c. 3-8 ft (.91-2.44 m)
d. 5-20 ft (1.52- 6.09 m)

Question 5

The temperature at which sufficient vapours are being generated to sustain chemical reaction is known as what?

a. flash point

b. lower flammable limit

c. fire point

d. autoignition temperature

e. flashover

Question 6

The chemical decomposition of a solid material by heating is known as?

a. vaporization
b. combustion
c. endothermic
d. pyrolosis

Question 7

The four components of the fire tetrahedron are?

a. Combustion, chemical reaction, oxidizing agent, heat
b. Radiation, chemical reaction, oxidizing agent, heat
c. Reducing agent, chemical reaction, oxidizing agent, heat
d. Ignition, chemical reaction, oxidizing agent, heat

Question 8

This point in the stream is known as the _____?

a. low pressure point
b. breakover point
c. handline
d. hydraulic maximum

Question 9

What chemical reaction is taking place here?

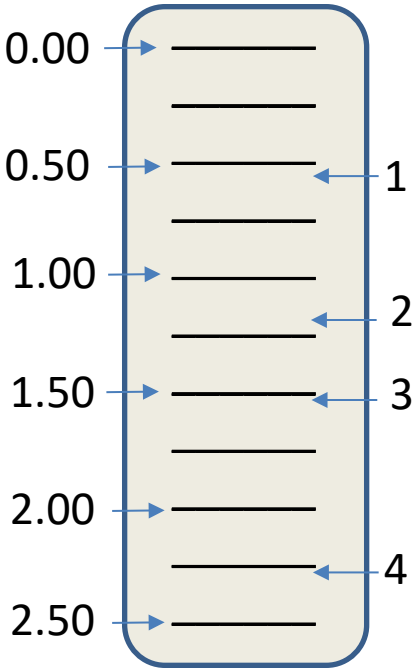
a. $Ca(OH)_2 + CO \leftrightarrow CaCO_2 + H_2O$

b. $Ca(OH)_2 + CO_2 \leftrightarrow CaCO_3 + H_2O$

c. $NaHCO_3 + CO_2 \leftrightarrow NaC_2O_3 + H_2O$

d. $NaHCO_3 + CO \leftrightarrow 2CO_2 + NaOH$

Question 10



a. 1= CH4, 2= NO2, 3= SO2, 4= H_2S

b. 1= NO_2, 2= CH_4, 3= H_2S, 4= NO_2

c. 1= CH_4, 2= H_2S, 3=NO_2, 4=SO_2

d. 1= CH4, 2= NO_2, 3= H2S, 4=SO2

Question 12

What type of nozzle is this?

a. Crestar
b. Rockwood
c. Bresnan
d. Swivel

Question 17

Which one of these is a cellar nozzle?

a)

b)

c)

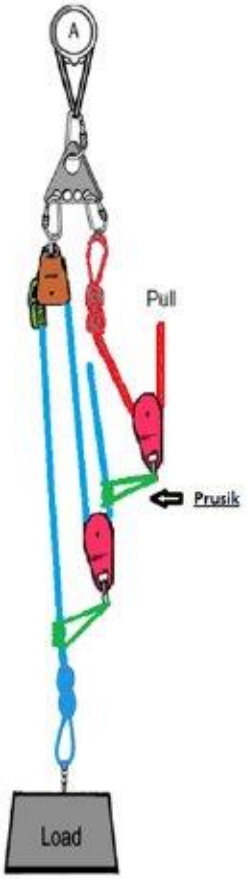
d)

e)

f)

Question 18

What is the mechanical advantage of this setup?



a. 3:1
b. 5:1
c. 6:1
d. 2:1
e. 4:1
f. 9:1

Question 20

Place these knots in order from strongest to weakest

1 _____

4 _____

2 _____

3 _____

Question 22

Which one of these is NOT considered a Self Contained Breathing apparatus?

a. Oxygen or Self Generating

b. Air Purifying/Respirator

c. Oxygen rebreather

d. Pressure Demand

Question 33

What type of nozzle is this?

a) Basic fog nozzle
b) Constant pressure nozzle
c) constant gallonage
d)constant/select nozzle

Question 35

Which is not a method that firefighting foam uses to extinguish fires?

a) separating
b) cooling
c) smothering
d) evaporation
e) penetrating

Question 37

What is the boiling point and melting point of Methane Gas CH_4?

a) 100 °C (212 °F) 47 °C (117 °F)
b) -162 °C (-260 °F) -182.5 °C (-297 °F)
c) 265 °C (509 °F) 97.4 °C (207 °F)
d) -15 °C (5 °F) -55 °C (-67 °F)

Question 38

Who successfully tested their prototype of a flame safety lamp in 1816?

a) Sir Edmund Hillary
b) Sir John A. MacDonald
c)Sir Humphry Davy
d) Sir William Clanny

Question 42

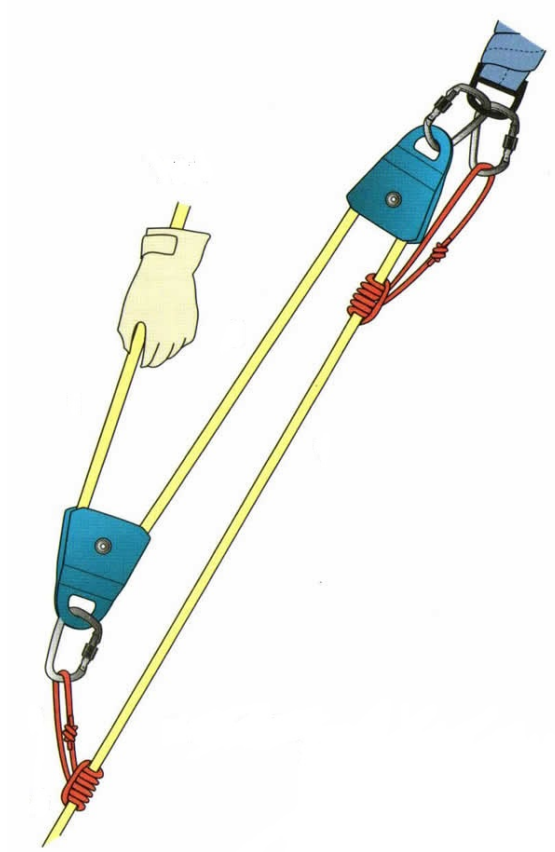
What is the name of this rope configuration?

a) Piggy back ratchet system

b) 3:1 Z-rig

c) 2:1 raising system

d) 5:1 Block and tackle



Question 43

Match the safety lamp to its proper name

The Clowes Lamp

The Marsaut lamp

The Clanny Lamp

The Stephenson Lamp

Theory - Retest

Question 1

What is the name of this lamp

a. The Davy Lamp

b. The Stephenson Lamp

c. The Clanny Lamp

d. The Mueseler Lamp

e. The Marsaut Lamp

f. The Clowes Hydrogen Lamp

g. The Electric Cap Lamp

h. The Flame-safety Lamp

i. Garforth Lamp

Question 4

At what stage of fire development does backdraft occur?

a. decay stage

b. fully developed stage

c. growth stage

d. incipient stage

Question 11

In actual operation fire stream angles between ___ and ___ provide maximum Effective horizontal reach?

a. 50-54 degrees
b. 40-45 degrees
c. 27-32 degrees
d. 30-34 degrees

Question 13

What is guaranteed to be created with chemical oxygen breathing apparatus?

a. heat
b. CO
c. KOH
d. water

Question 15

Description

- SG = 1.191
- Colour = None
- Taste = None
- Odour = Sulfur
- Explosive Range = 4.3-45%

Gas

a. Acetylene

b. Hydrogen Sulfide

c. Nitrogen

d. Ammonia

e. Sulfur Dioxide

Question 16

Most fog nozzles are designed to operate at ____ ?

a. 75 psi (517 kPa)
b.100 (689 kPa)
c. 150 (1034 kPa)
d. 250 (1724 kPa)

Question 19

What is the breaking strength of a Pro series single pulley?

a. 38 kN

b. 13.5 kN

c. 72 kN

d. 57 kN

Question 21

What is the breaking strength of a rescue rack?

a. 32 kN

a. 13.5 kN

b. 38 kN

d. 64 kN

Question 23

Which statement best describes the chemical chain reaction that produces heat and flame?

a. Rapid Oxidation of fuel
b. Material unites with Oxygen rapidly
c. Rapid Chain Reaction
d. Chemical Reaction

Question 24

When deploying Foam which one of the following best describes its effect on a CLASS A Fire?

a. Separating the fuel and the fire

b. Cooling the Temperature of the Fire

c. Smothering and preventing release of Flammable vapours

d. Penetrating due to low surface tension of agent

Question 25

In an Oxygen Rebreather Apparatus which of the following systems would control the flow of 100% Oxygen from the Cylinder to the wearer?

a.The Oxygen Pressure/Regulator/Valve/Pnuematics Sensor/Alarm system
b. The Counterlung/hoses/canister
c. Facemask
d. Demand and Pressure release Valves

Question 27

Which of the following chemicals should not be used on a Class B and C Fire?

a. Monoammonium phosphate
b. Carbon Dioxide
c. Sodium Chloride
d. Sodium Bicarbonate
e. Potassium Chloride
f. Potassium Bicarbonate

Question 29

Which Gas will produce the following symptoms? At Concentrations of 7% to 10% this gas will cause dizziness, headache, visual and hearing dysfunction and unconsciousness within a few minutes to an hour.

A. $N0_2$
B. 0_2 Deficiency
C. C_2H_4
D. CO_2
E. H_2

Question 30

In a classic rebreather apparatus which of the following parts would NOT be found in the system design?

A Mouthpiece

B O_2 Cylinder

C Breathing Bag or Lung

D. Demand Valve (Demand valves or regulators will be found on Positive Pressure Demand apparatus only)

E. Over Pressure Valve

Question 31

Which of these is not a rope rescue anchor system?

a) Contingency
b) Load distributing
c) Load sharing
d) Load reducing
e) Simple
f) Two point load

Question 32

Which is not an alternate term for a spray nozzle?
a) fog nozzle
b) adjustable nozzle
c) smooth bore nozzle
d) adjustable fog nozzle

Question 35

Which is not a method that firefighting foam uses to extinguish fires?

a) separating
b) cooling
c) smothering
d) evaporation
e) penetrating

Question 39

This gas is slightly lighter than air. It is flammable and explosive in mixtures with air in concentrations between 12.5 and 74 %. It is toxic because it blocks the ability of the hemoglobin in the blood to carry Oxygen from the lungs to the muscles and other tissue in the human body.

a) CO
b) CH_4
c) CO_2
d) H_2O

Questio40

At what concentration will H_2S lead to eye damage?

a) 10- 20 ppm
b) 50-100 ppm
c) 320-530 ppm
d) 800ppm

Question 41

When using ropes both for training and rescue what is the minimum safety factor required?

a) 50:1
b) 25:1
c) 10:1
d) 15:1

IMRC 2016
Theory Test (Answer Sheet)

1) What Type of Safety Lamp is this?

a. The Davy Lamp

b. The Stephenson Lamp

c. The Clanny Lamp

***d. The Mueseler Lamp**

e. The Marsaut Lamp

f. The Clowes Hydrogen Lamp

g. The Electric Cap Lamp

h. The Flame-safety Lamp

i. Garforth Lamp

2) The methods of extinguishing of a wet chemical extinguisher are?

a) Cooling

b)Chain inhibition

***1- c) Oxygen depletion**

d) Heat transfer cooling

***2- e) Vapour suppression**

f) Cooling

3) What is the stream reach of this fire extinguisher?

a. 30-40 ft (9.14-12.19 m)

b. 4-6 ft (1.22-1.83 m)

***c. 3-8 ft (.91-2.44 m)**

d. 5-20 ft (1.52- 6.09 m)

4) At what stage of fire development does backdraft occur?

*** a) decay stage**

b) fully developed stage

c) growth stage

d) incipient stage

5) The temperature at which sufficient vapours are being generated to sustain chemical reaction is known as what?

a) flash point

b) lower flammable limit

***c) fire point**

d) autoignition temperature

e) flashover

6) The chemical decomposition of a solid material by heating is known as?

a) vaporization

b) combustion

c) endothermic

***d) pyrolosis**

7) The four components of the fire tetrahedron are?

a) Combustion, chemical reaction, oxidizing agent, heat

b) Radiation, chemical reaction, oxidizing agent, heat

*** c) Reducing agent, chemical reaction, oxidizing agent, heat**

d) Ignition, chemical reaction, oxidizing agent, heat

8) This point in the stream is known as the _____?

a) low pressure point
***b) breakover point**
c) handline
d) hydraulic maximum

9) What chemical reaction is taking place here?

a) Ca (OH)2+ CO ←→ CaCO2+ H2O

***b) Ca (OH)2+ CO2 ←→ CaCO3+ H2O**

c) NaHCO3+ CO2 ←→ NaC2O3+ H2O

d) NaHCO3+ CO ←→ 2CO2+ NaOH

10) Place in order of SG from lowest to highest

a) 1= CH4, 2= NO2, 3= SO2, 4= H2S

b) 1= NO2, 2= CH4, 3= H2S, 4= NO2

***c) 1= CH4, 2= H2S, 3=NO2, 4=SO2**

d) 1= CH4, 2= NO2, 3= H2S, 4=SO2

11) In actual operation fire stream angles between ___ and ___ provide maximum Effective horizontal reach?

a) 50-54 degrees

b) 40-45 degrees

c) 27-32 degrees

***d) 30-34 degrees**

12) What type of nozzle is this?

a) Crestar

b) Rockwood

***c) Bresnan**

d) Swivel

13) What is guaranteed to be created with chemical oxygen breathing apparatus?

***a) heat**

b) CO

c) KOH

d) water

14) What are the limiting factors that affect the reach of a fire stream?

***a)gravity**

***b)water velocity**

c)water temperature

***d)fire stream pattern**

e)air temperature

***f)wind**

***g)water droplet friction with air**

h)solids content of water

15)What is this gas described here:

- **SG = 1.191**
- **Colour = None**
- **Taste = None**
- **Odour = Sulfur**
- **Explosive Range = 4.3-45%**

a) Acetylene

***b) Hydrogen Sulfide**

c) Nitrogen

d) Ammonia

e) Sulfur Dioxide

16) Most fog nozzles are designed to operate at ____ ?

a) 75 psi (517 kPa)

***b)100 (689 kPa)**

b) 150 (1034 kPa)

d) 250 (1724 kPa)

17) Which one of these is a cellar nozzle?

a)
b)
***c)**
d)
e)
f)

18) What is the mechanical advantage of this setup?

a) 3:1
b) 5:1
***c) 6:1**
d) 2:1
e) 4:1
f) 9:1

19) What is the breaking strength of a Pro series single pulley?

***a) 38 kN**
b) 13.5 kN
c) 72 kN
d) 57 kN

20) Place these knots in order from strongest to weakest

a) 1,2,4,3

21) What is the breaking strength of a rescue rack?

a)32 kN
*** b)13.5 kN**
c) 38 kN
d) 64 kN

22) Which one of these is NOT considered a Self Contained Breathing apparatus?

a) Oxygen or Self Generating
***b) Air Purifying/Respirator**
c) Oxygen rebreather
d) Pressure Demand

23) Which statement best describes the chemical chain reaction that produces heat and flame?

a) Rapid Oxidation of fuel
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d) Chemical Reaction

24) When deploying Foam which one of the following best describes its effect on a CLASS A Fire?

a) Separating the fuel and the fire
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***d) Penetrating due to low surface tension of agent**

25) In an Oxygen Rebreather Apparatus which of the following systems would control the flow of 100% Oxygen from the Cylinder to the wearer?

***a)The Oxygen Pressure/Regulator/Valve/Pnuematics Sensor/Alarm system**
b) The Counterlung/hoses/canister
c) Facemask
d) Demand and Pressure release Valves

26) What is the PRIMARY function of the Counterlung or Breathing bag?

a) **Assists the wearer in breathing when he gets tired**

b) Collection point of Oxygen enriched diluent

***c) Allows the breathing loop to expand and or contract when the user breathes**

d) Allows for the collection of water vapour through the use of a water trap

27) Which of the following chemicals should not be used on a Class B and C Fire?

a)Monoammonium phosphate

b)Carbon Dioxide

***c) Sodium Chloride**

d) Sodium Bicarbonate

e) Potassium Chloride

f) Potassium Bicarbonate

28) Tests for Methane (CH_4) must be made:

***a) At the back or roof**

b) At chest height

c) Below the waist

d) Near the floor

29) Which Gas will produce the following symptoms? At Concentrations of 7% to 10% this gas will cause dizziness, headache, visual and hearing dysfunction and unconsciousness within a few minutes to an hour.

a) $N0_2$

b)0_2 Deficiency

c) C_2H_4

***d) CO_2**

e) H_2

30) In a classic rebreather apparatus which of the following parts would NOT be found in the system design?

a) **Mouthpiece**

b) **O_2 Cylinder**

c) **Breathing Bag or Lung**

***d) Demand Valve**

e) Over Pressure Valve

31) Which of these is not a rope rescue anchor system?

a) **Contingency**
b) **Load distributing**
c) **Load sharing**
***d) Load reducing**
e) **Simple**
f) **Two point load**

32)Which is not an alternate term for a spray nozzle
a) fog nozzle
b) adjustable nozzle
***c) smooth bore nozzle**
d) adjustable fog nozzle

33) What type of nozzle is this?
a) basic fog nozzle
b) constant pressure nozzle
***c) constant gallonage nozzle**
d)constant/select nozzle

34)What is the most common nozzle control valve?
a) rotary control valve
b) slide valve
***c) ball valve**
d) butterfly valve

35) Which is not a method that firefighting foam uses to extinguish fires?
a) separating
b) cooling
c) smothering
***d) evaporation**
e) penetrating

36) Which is not a method that firefighting foam uses to extinguish fires?

a) separating

b) cooling
c) smothering
***d) evaporation**
e) penetrating

37) What is the boiling point and melting point of Methane Gas CH4?

a) 100 °C (212 °F) 47 °C (117 °F)
***b) -162 °C (-260 °F) -182.5 °C (-297 °F)**
c) 265 °C (509 °F) 97.4 °C (207 °F)
d) -15 °C (5 °F) -55 °C (-67 °F)

38) Who successfully tested their prototype of a flame safety lamp in 1816?

a) Sir Edmund Hillary
b) Sir John A. MacDonald
***c)Sir Humphry Davy**
d) Sir William Clanny

39) This gas is slightly lighter than air. It is flammable and explosive in mixtures with air in concentrations between 12.5 and 74 %. It is toxic because it blocks the ability of the hemoglobin in the blood to carry Oxygen from the lungs to the muscles and other tissue in the human body.

***a) CO**
b) CH4
c) CO2
d) H2O

40) At what concentration will H2S lead to eye damage?

a) 10- 20 ppm
***b) 50-100 ppm**
c) 320-530 ppm
d) 800ppm

41) When using ropes both for training and rescue what is the minimum safety factor required?

a) 50:1

b) 25:1
***c) 10:1**
d) 15:1

42) What is the name of this rope configuration?

a) Piggy back ratchet system
***b) 3:1 Z-rig**
c) 2:1 raising system
d) 5:1 Block and tackle

APPENDIX F – TECHNICIAN BENCHING EQUIPMENT MAINTENANCE COMPETITION

Viet Nam

Battery Expires January 16, 2017; Soda Lime Expires November 23, 2016

Technician's Report	Result and Units	Defects
Function Test Date (month as Jan – Dec)	P2016/08/24	Dây chằng mặt nạ [illegible]
First initial, last name of technician	PHAM VAN LUC	Ống cứng [illegible] thiếu ống thở và xoắn
Visual Inspection (incl. belt & lanyard)	ok.	ống mềm nối bình và thiếu zoăng
O_2 Cylinder Hydrostatic Test	ok.	Thiếu nắng van xả khí thừa
Face Mask Inspection	ok.	Thiếu zoăng chai oxy
Low Pressure Warning	1,2	
Inhalation Valve	31,8	
Exhalation Valve	-17,3	
Drain Valve	19,1	
Positive Pressure Leak Test	7	
Pressure Relief Valve Activation		
High Pressure Leak Test		
Constant Dosage Rate		
Minimum Valve Activation Pressure		
Bypass Valve		
Cylinder Pressure		
Low Pressure Alarm		
Battery Test		
Date battery to be replaced	2017/01/16	
Date soda lime to be replaced (6 months)	2016/10/23	

17

TECHNICIAN SIGNATURE:_____

11:14

Tossed Tester
cleaned Sentinel

2016 International
Mine Rescue Competition

1.	Locate twisted buckle on head strap of face mask	(2)	✓
2.	Repair twisted buckle on Head strap of facemask	(2)	✓
3.	Locate missing gasket on pressure relief valve	(2)	✓
4.	Install proper gasket on pressure relief valve	(2)	✓
5.	Locate missing gasket on reducer where bottle attaches	(2)	✓
6.	Install proper gasket on reducer Put R18444 in it	(2)	2
7.	Locate missing anti-crush rings	(2)	✓
8.	Install 2 anti-crush rings	(2)	✓
9.	Locate missing filter ion switch box	(2)	2
10.	Install filter on switch box	(2)	—
11.	Locate missing valve in pressure relief valve	(2)	✓
12.	Install valve in pressure relief valve	(2)	✓
13.	Locate leak in soda lime canister (Prompted by Spectator after he returned from outside)	(2)	1
14.	Replace parts from bad canister, pack and Install new canister	(2)	✓
15.	Locate high dosage caused by missing gasket under minimum valve lever	(2)	2
16.	Install proper gasket and tighten minimum valve lever	(2)	—
17.	Changing parts (cylinder, bag, cooler, hoses, mask,) without verification apply 1 demerit per item		[illegible]

Total Demerits 7

Time:__________

Judge: [signature]

11:14 Oren Carson

Judges Demerit Sheet for Incorrect Units	1 Demerit for Wrong Unit	Defects
Function Test Date (month as Jan – Dec)	✓	TWISTED STRAP
First initial, last name of technician	✓	MISSING ANTI-Crash Ring
Visual Inspection (incl. belt & lanyard)	✓	TWISTED HOSE
O_2 Cylinder Hydrostatic Test	✓	MISSING O-RING ON PRV
Face Mask Inspection	✓	MISSING VALVE ON PRV
Low Pressure Warning NO UNITS	(1) 1.2 ( )	NO U. MISSING O-RINGS ON BOTTLE
Inhalation Valve	✓	
Exhalation Valve	✓	
Drain Valve	✓	
Positive Pressure Leak Test	✓	Replaced Soda Lime didn't Document
Pressure Relief Valve Activation	1.	
High Pressure Leak Test	1.	
Constant Dosage Rate	1.	
Minimum Valve Activation Pressure	1.	
Bypass Valve	1	
Cylinder Pressure	1	
Low Pressure Alarm	1	
Battery Test	1	
Date battery to be replaced	✓	
Date soda lime to be replaced (6 months)	✓	

(9)

Technician Summary Sheet

TECHNICIAN: PHAM VAN LUC TEAM: VIETNAM	DATE:

	DEMERIT CHARGED;
GENERAL PROBLEM	71
FUNCTION TESTS	8
TIME	30:00
INCORRECT UNITS USED	1
DEFECTS NOT DOCUMENTED	1
TOTAL DEMERITS	17
SIGNATURE OF JUDGE	

COMMENTS:

VIETNAM.

2016 International
Mine Rescue Competition

1.	Locate twisted buckle on head strap of face mask	(2) ✓
2.	Repair twisted buckle on Head strap of facemask	(2) ✓
3.	Locate missing gasket on pressure relief valve	(2) ✓
4.	Install proper gasket on pressure relief valve	(2) ✓
5.	Locate missing gasket on reducer where bottle attaches	(2) ✓
6.	Install proper gasket on reducer	(2) 2
7.	Locate missing anti-crush rings	(2) ✓
8.	Install 2 anti-crush rings	(2) ✓
9.	Locate missing filter ion switch box	(2) 2
10.	Install filter on switch box	(2)
11.	Locate missing valve in pressure relief valve	(2) ✓
12.	Install valve in pressure relief valve	(2) ✓
11.14 13.	Locate leak in soda lime canister	(2) 1
14.	Replace parts from bad canister, pack and Install new canister	(2) ✓
15.	Locate high dosage caused by missing gasket under minimum valve lever	(2) 2
16.	Install proper gasket and tighten minimum valve lever	(2)
17.	Changing parts (cylinder, bag, cooler, hoses, mask,) without verification apply 1 demerit per item	✓

Total Demerits 7

Time: 31.00

Judge: R Jo

TEAM TOLD HIM TO CHECK SODA CANISTER ?
AFTER HE RETURNED TO TEST.

Judges Demerit Sheet for Incorrect Units	1 Demerit for Wrong Unit	Defects
Function Test Date (month as Jan – Dec)	✓	
First initial, last name of technician	✓	
Visual Inspection (incl. belt & lanyard)	✓	
O_2 Cylinder Hydrostatic Test	✓	
Face Mask Inspection	✓	
Low Pressure Warning	~~✓~~ 1	NO UNITS
Inhalation Valve	✓	
Exhalation Valve	✓	
Drain Valve	✓	
Positive Pressure Leak Test	✓	REPAIRED SODA LIME – NO RECORD
Pressure Relief Valve Activation	1	
High Pressure Leak Test	1	
Constant Dosage Rate	1	
Minimum Valve Activation Pressure	1	
Bypass Valve	1	
Cylinder Pressure	1	
Low Pressure Alarm	1	
Battery Test	1	
Date battery to be replaced	✓	
Date soda lime to be replaced (6 months)	✓	

Technician Summary Sheet

TECHNICIAN: TEAM: VIETNAM.	DATE: 24-8-16

	DEMERIT CHARGED;
GENERAL PROBLEM	7
FUNCTION TESTS	8
TIME	
INCORRECT UNITS USED	1
DEFECTS NOT DOCUMENTED	1
TOTAL DEMERITS	17.
SIGNATURE OF JUDGE	

COMMENTS:

END OF DOCUMENT