

**INITIAL COMPREHENSIVE COURSE  
TRAINING PROSPECTUS / PROGRAMME  
FOR THE PROSPECTIVE  
RESCUE TEAM MEMBER**



## 1. INTRODUCTION

Mines Rescue Services (MRS) which was established in 1924 and provides a voluntary rescue service to the mining industry, is a private sector organisation that trains persons for rescue work and administers a rescue scheme, to provide rescue and recovery services, resources, and expertise for an effective emergency service primarily for the mining industry.

The company is internationally recognised and is a unique organisation that consists of practising subject matter experts, trainers, assessors, and moderators in the field of mines rescue services.

Four Rescue Stations are maintained at Carletonville, Evander, Steelpoort and Welkom, and are accredited assessment centres.

The company has been assessed and registered by the National Quality Authority against the provisions of the ISO 9001: 2015 Quality Management System and has a reliable management information system.

MQA accredited the Skills Programme Registered Number: MQA/SP/0184/21

The following prospectus applies to a Prospective Rescue Team Member for mining operations. The requirements may not be entirely applicable for these candidates employed outside the South African Mining Industry. **(Those mark with \*)**

## 2. PURPOSE OF THE SKILLS PROGRAMME

This skills programme is designed to provide qualifying learners with the applied competence to extinguish fires using the appropriate equipment, in a controlled manner without further risk.

Recipients of this skills programme will gain the necessary knowledge and skills associated with firefighting techniques, risk management, appropriate emergency equipment, and emergency scene management.

The skills programme is designed to be flexible and empowers the learner to acquire and demonstrate knowledge, skills, attitude, and values required to work safely and effectively.

This skills programme outlines the basics of technical rescue response and preparedness.

By using these standards, learners will be accomplishing several objectives simultaneously namely, following the accepted standards that others currently use, ensuring a team's ability to work with other teams much easier as the fundamentals will be the same. Liability will be lessened by using the accepted standard of operations. Even though the National Fire Protection Association (NFPA) standards are not laws, they are universally recognised in most communities as the way to do business.

A large part of planning for the team will revolve around the types of specialties the team plans to provide. Each specialty has its own training requirements that will have to be met as learners develop the plan for making their team a reality.

***NOTE: Any additional learning not reflected in the core unit standards to be trained in addition; according to the specific mine procedures, the competencies required for training are contained in the DMRE mandatory Code of Practice on Emergency Preparedness and Response; and the Mine Health and Safety Act***

### 3. COMPOSITION OF THE SKILLS PROGRAMME

#### Core Unit Standards

The following Core Unit Standards must be achieved:

SAQA NUMBER	UNIT STANDARD TITLE
12484	Perform basic firefighting
254215	Maintain and operate a range of emergency equipment
242825	Conduct evacuation and emergency drills
259597	Explain emergency preparedness and response
255818	Perform rescue breathing and cardiopulmonary resuscitation
260139	Undertake an emergency rescue operation in a confined space
115092	Measure and record the concentration of flammable and noxious gases and vapours and take appropriate action
13703	Perform operational communicational activities

#### Elective Unit Standards

The candidate may select any of the below Elective Unit Standards:

SAQA NUMBER	UNIT STANDARD TITLE
254223	Apply emergency scene safety measures
242853	Perform support operation at a fire incident
259637	Test for flammable gases using a handheld instrument and take appropriate action
260122	Supervise and apply ventilation at a fire and rescue
260121	Supervise a fire fighting and rescue operation
244383	Conduct continuous hazard identification and risk assessment within a workplace

### 4. RESCUE TEAM MEMBER CRITERIA

Due to the inherent dangers associated with this type of work and in addition to the requirements of the Mine Health and Safety Act (MHSA)\*, the following minimum additional criteria must be considered when selecting a new Rescue Team Member.

- Must have a minimum of 3 years' underground experience\* and must be between 21 and 46 years of age. \*
- Must be accepted by fellow Rescue Team Members and adhere to team discipline.
- Must have sufficient numeric and English literacy skills at a minimum level of grade 10. \*
- Must have a Competent Person "A" or Blasting Certificate of Competency for the relevant mining operation and a Mine. \*

- Shall be in possession of a valid First Aid Certificate (Level 1) or higher medical qualification. \*
- A Rescue Team Members can be male or female. No exceptions will be made with the standard of the training and all candidates must pass the prescribed course prior to receiving a Licence to Practice\* as a Rescue Team Member.

## 5. MEDICAL EXAMINATIONS

The medical examinations to be completed in detail as a candidate will not be allowed to undertake Initial Heat Tolerance Test or further training.

Both the following examinations must be completed:

- **Medical Certificate from Candidates own Doctor:** Licence to Practice\* (Medical Certification form MRS/QM/Fm021) is completed by the prospective Rescue Team Member's own Doctor.
- **Initial Medical:** Licence to Practice\* (Initial Medical Examination form MRS/QM/Fm 021). The Mine Doctor should refer to the medical screening results from the prospective Rescue Team Member's own doctor and conduct the full medical.

## 6. RESCUE STATION ARRANGEMENTS AND COURSE PRE-REQUISITES

Light catering, tea, coffee, and refreshments are available at the relevant Rescue Stations.

Secure parking and full ablutions facilities provided. All courses start at 07H30.

When attending the course, you must be equipped with the following:

- Complete Medical Examination forms or a Licence to Practice with the Medical Examination completed.
- Pre-Operational Medical Examination (Form MRS/QM Fm 013): To be completed by Medical Officer / Attendant or other suitable trained person as nominated by him / her for ALL deployments. (*The examination can be carried out up to 12 Hours before reporting for Training or at a Control of the affected Mine / Site. Note: If more than 12 hours has elapsed since the Pre-Operational Medical, a Declaration of Fitness must be completed by the Rescue Team Captain*)
- A complete, functional Closed-Circuit Breathing Apparatus (CCBA) with Pre-use Checklist\*.
- (x15) Fifteen Refillable Canister filter pads\*.
- (x2) Two colour ID photos\*.
- One set underground clothing, toiletries and towel with the necessary personal protective equipment including. (Hard hat\*, overall, gloves, elbow guards\*, knee guards\* and gumboots / safety shoes)
- Notebook and pen.
- Operational Manual (Successful HTT candidates) with the Self Tests of Modules 1, 2, 5, 6 and 7 completed to the best of your ability\*. Ensure Manual is available when attending the Initial Comprehensive Course.)
- Accommodation must be arranged where applicable. Contact MRS for more information.

You must be clean-shaven during the duration of the course to ensure a proper seal of the full-face mask when donned. A well-groomed moustache is permitted. Any performance enhancing substances prior to and during the course are not allowed.

**Note: The dress code during the week is collar and tie, long pants, and appropriate shoes.**

## **7. CONTACT DETAILS (RESCUE STATIONS)**

Head Office	018 781-1141/2	training@minesrescue.co.za
Carletonville	018 781-1141/2	carleton@minesrescue.co.za
Evander	017 632-4671/1122	evander@minesrescue.co.za
Welkom	057 352-8398/2786	welkom@minesrescue.co.za
Steelpoort	013 230-8050/1	steelpoort@minesrescue.co.za

## **6. OBJECTIVE OF TRAINING PROGRAMME**

The candidate receives training and instruction applicable to **underground mining** and screened to an acceptable level of competence to practice as a Rescue Team Member.

## **7. HEAT TOLERANT TEST / INITIAL SCREENING TEST (1 Day)**

The test will be undertaken in a chamber that is environmentally controlled under the supervision of a certified MRS staff member. A Candidate who does not feel healthy should not attempt any tests.

## **8. INITIAL-SCREENING TEST**

A candidate subjected to Initial Screening Test prior to the Heat Tolerant Test to ensure that the candidate has the mental and physical potential to complete the Initial Comprehensive Course.

This initial screening test will be carried out prior the Heat Tolerant Test and will include physical tasks with the Closed-Circuit Breathing Apparatus (CCBA) and Full-Face Mask donned and not connected to the connection piece.

A candidate will have to complete the first half of the Measured Workload Test within 25 minutes. The test will be conducted with a donned Closed-Circuit Breathing Apparatus (CCBA) with the Full-face Mask which is not connected to the CCBA connection piece that ensures an open breathing circuit.

The purpose of the Initial Screening Test to assess the physical / mental capabilities of the candidate to perform physical work and simultaneously determine whether he/she is claustrophobic.

In the event where a candidate is unsuccessful to complete the Initial Screening Test, he/she will be allowed additional opportunity to complete the Initial Pre-screening Test including the Heat Tolerant Test within 30 days. If the candidate is unsuccessful, he/she will not be allowed another opportunity.

Successful Candidate will be briefed on the programme for the Initial Comprehensive Course and all necessary documentation will be provided\*.

## **HEAT TOLERANT TEST**

**The HTT shall be carried out in a climatic chamber at a dry bulb temperature of 33.2°C, a wet bulb temperature of 31.7°C (maximum variance of ±0.3°C) and an air movement of at least 0.4m/s**

The test is maintained at a work rate of 54 Watt by bench-stepping to a fixed metronome stepping rate of 24 complete steps per minute for 60 minutes. Male candidates will only wear a skirt while the female candidates will in addition wear a sports top.

At the halfway stage (30min) every candidate **must** drink a minimum of one cup (250 – 300 ml) of **water**. Candidates should discontinue the bench-stepping while drinking the water and resume stepping immediately thereafter.

At the completion of the 60 minutes stepping exercise a **rectal** temperature will be measured with a pre-calibrated electronic thermometer.

### Interpretation of results

- Heat intolerant: more or equal to **39.1°C** must be **rejected\***. These candidates will be allowed one more attempt to redo the Initial HTT after a 30-day period, but within 90 days.
- Heat tolerant: less or equal **39.0°C** will be **accepted**.

## 9. COMPLETE MEMORANDUM OF AGREEMENT\*

Prior to the candidate attending Initial Comprehensive Course, the Rescue Team Captain will ensure that a Rescue Team Member's Memorandum of Agreement (MRS/QM/F 003) \* is completed, explained, and signed by the authorised representatives of the Mine.

A copy of the signed Agreement will be kept on the candidate's personal file at the respective Rescue Station.

## 10. INITIAL COMPREHENSIVE COURSE (5 Days Monday to Friday)

This is an Initial Comprehensive Course for candidates in the use of closed circuit, long duration breathing apparatus, firefighting, and associated techniques.

Initial training takes place at the relevant MRS Rescue Station and the syllabus is pre-set and divided into a morning and afternoon sessions, namely lectures (theory) and practical application, respectively.

Practical training entails the interpretation of the morning lectures. This excludes the Measured Workload Test which is a pre-requisite to pass the course.

If the prospective candidate fails at any stage during the Initial Comprehensive Course (theory or practical) he / she may be allowed one more attempt depending on the criteria.

The required pass rate for all daily examinations is 75% and a final examination is written on the last day of the course.

**Mines Rescue Services have zero tolerance for dishonesty and misconduct, we create a culture that encourages openness, honesty, and value service to provide a meaningful experience and support to the candidates.**

### Detailed Programme (Initial Comprehensive Course)

#### MONDAY

##### Morning Theory:

- Closed-Circuit Breathing Apparatus components and functions.
- Disassembling and assembling of the Closed-Circuit Breathing Apparatus.
- Coming into oxygen and going out of oxygen.
- Oxygen booster pump components and function.

**Afternoon Practical:**

- Closed-Circuit Breathing Apparatus familiarisation and practical exercise of going in / out of oxygen.
- The candidate will perform a simulated exercise to be able to perform work under load, in confined spaces, sandbag drill, pipe stick drill, maze drill and stoop walking.
- All drills are completed successfully and within the prescribed time limits, temperature ranges using only one oxygen cylinder.
- Washing, cleaning, and drying of the Closed-Circuit Breathing Apparatus.

**TUESDAY****Morning Theory:**

- Written test on the previous day modules.
- Candidate, demonstrate the filling of depleted oxygen cylinder using the oxygen booster pump.
- Assemble and perform leakage / systems test on the Closed-Circuit Breathing Apparatus.
- Emergency procedures on depleted oxygen cylinder (Buddy-Buddy), CPR, heatstroke, gassing, and resuscitation.
- Requirements of a Fresh Air Base, link line and lifeline.
- Modus operandi.
- Documentations (Rescue Team Members notebook, checklists, and the Licence to Practice)

**Afternoon Practical:**

- Claustrophobia is tested where the Candidate crawls through a confined area in zero visibility, smoke is used to create poor visibility.
- Perform Buddy-Buddy procedure and on completion transport a 25kg marble through obstructed areas.
- Demonstrate the resuscitation procedure using the Closed-Circuit Breathing Apparatus and demonstrate the steps to be taken when a man collapses in a toxic environment.
- Demonstrate and discuss the reasons for "Survival Mode" procedure while in oxygen wearing the Closed-Circuit Breathing Apparatus.
- Participate in debriefing sessions and report on risks identified, conditions and action taken.
- The candidates return to the assemble room in a team formation.
- Filling of depleted oxygen cylinder using the oxygen booster pump.
- Washing, cleaning, and drying of the Closed-Circuit Breathing Apparatus.

**WEDNESDAY****Morning Theory:**

- Written test on the previous day modules.
- Assemble and perform leakage / systems test on the Closed-Circuit Breathing Apparatus.
- Gas properties, sampling techniques and interpretation.
- Entering an irrespirable atmosphere.
- Working in hot locations / environment.
- Sub Strata radio communication system.

### **Afternoon Practical: (Fire in the gallery)**

- Briefing session with the candidates where the following is discussed.
  - Control Room etiquette and reference to the Rescue Team Captain notebook.
  - The history of the fire or incident.
  - Current strategy and the action to be taken.
  - Instructions to be in writing.
  - Frequency of reporting.
  - Plan of the affected area.
- The candidates will establish a Fresh Air Base, install, and perform a functional test on the Sub Strata radio communication system.
- Monitor the conditions of the Fresh Air Base and take appropriate action in response to changes in conditions.
- The candidate must demonstrate the correct procedure when going into oxygen.
- The candidates will perform a comprehensive reconnaissance and depending on the number of members being on the course, each one will get a chance to take a gas reading at pre-defined points in the gallery.
- Upon return to the Fresh Air Base the candidate must demonstrate the correct procedure when going out of oxygen.
- Participate in debriefing sessions and report on risks identified, conditions and action taken.
- The candidates return to the assemble room in a team formation.
- Filling of depleted oxygen cylinder using the oxygen booster pump.
- Washing, cleaning, and drying of the Closed-Circuit Breathing Apparatus.

## **THURSDAY**

### **Morning Theory:**

- Written test on the previous day modules.
- Assemble and perform leakage / systems test on the Closed-Circuit Breathing Apparatus.
- Understand how to perform a pre-use inspection on several types of Long Duration Self-Contained Self-Rescuer and understand the donning procedure.
- Several types of water harnessing equipment and applications of this equipment.

### **Afternoon Practical: (No fire in gallery – Synthetic Smoke)**

- Briefing session with the candidates where the following is discussed.
  - Water harnessing equipment installation requirements.
  - Commissioning of the water harnessing system.
- The candidates will establish a Fresh Air Base, install, and perform a functional test on the Sub Strata radio communication system.
- The candidate must demonstrate the correct procedure when going into oxygen.
- The candidates will perform a comprehensive reconnaissance to establish the correct water harnessing equipment for the specific application.
- Collect and install the water harnessing equipment as per briefing instructions.
- Commission the water harnessing system from the main feed.
- Upon return to the Fresh Air Base the candidate must demonstrate the correct procedure when going out of oxygen.
- Participate in debriefing sessions and report on risks identified, conditions and action taken.
- The candidates return to the assemble room in a team formation.
- Filling of depleted oxygen cylinder using the oxygen booster pump.
- Washing, cleaning, and drying of the Closed-Circuit Breathing Apparatus.



**FRIDAY****Morning Theory:**

- Written and final examination conducted on all the modules presented during the week.
- Briefing on the Measured Workload Test procedure.
- Assemble and perform leakage / systems test on the Closed-Circuit Breathing Apparatus.

**Morning Practical: Measured Workload Test**

The Measured Workload Test is a realistic, yet controlled simulation of the physical tasks one can expect to encounter during emergencies. This test is carried out on a pre-determined route in the gallery whilst the candidate is wearing a Closed-Circuit Breathing Apparatus in oxygen.

The Measured Workload Test must be successfully completed by all Initial Class Candidates within 40 minutes using only one filled oxygen cylinder by performing the following components:

- Sandbags.
- Pipe sticks.
- Stoop walk.
- Specific obstacle section.
- Ladder climb.
- Crawling section.
- Rat cage.

**11. CLOSING CEREMONY & CERTIFICATION**

All candidates are debriefed, awards presented, and necessary documentation is provided. New Rescue Team Members to return to the mine to store their equipment and report to their Rescue Team Captain. \*