YUKON MINE RESCUE GUIDELINES

Mines in the Yukon must have health and safety management systems that include processes and measures necessary to ensure the health and safety of all workers. An essential component of the system includes the establishment of an emergency response plan that effectively manages and deals with emergency situations.

The purpose of this guideline is to provide guidance to mines on meeting the legislative mine rescue requirements set out in the *Workers' Safety and Compensation Act* S.Y. 2021, c.11 (Act) and the *Workplace Health and Safety Regulations* (WHS Regulations).

WORKPLACE HEALTH AND SAFETY REGULATIONS

The Act and Part 15 – Surface and Underground Mines or Projects, of the WHS Regulations, require a mine to have mine rescue stations and a sufficient number of workers and supervisors trained and assigned to mine rescue teams. There must be sufficient personnel and equipment for both mine rescue and first aid.

PART 15 - Surface and Underground Mines or Projects

Definitions

15.01

"mine" includes:

(1) A place where mechanical disturbance of the ground or any excavation is made to explore for or produce mineral-bearing substances, placer minerals, rock, limestone, earth, clay, sand, gravel, coal or carbonaceous material;

(2) all cleared areas, machinery and equipment for use in servicing a mine or for use in connection with a mine and buildings;

(3) all activities including exploratory drilling, excavation, processing, concentrating, waste disposal, and site reclamation;

(4) closed and abandoned mines where there is work activity; and

(5) surface and underground mines or projects.

15.04

Information on site

Plans, drawings, sections, specifications and related information showing the current status of the underground mining operation or project shall be maintained at the site of an underground mine or project and made readily available to an officer, a member of the joint health and safety committee, and workers concerned, when requested. This information shall include:

(1) a surface plan showing the location of claims with mining operations and showing all lakes, streams, main roads, railways, power transmission lines, buildings, shaft openings, portals, surface workings, diamond drill holes collared on surface, dumps and tailing ponds and their overflow;

(2) an underground plan showing all underground workings, including shafts, tunnels, diamond drill holes, refuge stations, fueling stations, escape ways, explosive magazine, lunch room, firefighting provisions, communication network, dams and bulkheads;

(3) vertical cross-sections of the underground mine or project at suitable intervals and suitable azimuths, showing all shafts, tunnels, drifts, stopes and other workings in relation to the surface, including the location of the top of the bedrock, surface and bottom of the overburden and surface of a known body of water or watercourse; and

(4) adequate ventilation plans showing the normal directions and volumes of the main air currents and locations of permanent fans, ventilation doors, stopes and connections with adjacent underground mines or projects.

MINE RESCUE

15.36

Mine rescue station specified

Mine rescue stations shall be established, equipped, operated and maintained at such places and in such manner:

(a) as a professional engineer or other competent person may certify;

(b) as the board may accept; and

(c) as an officer may direct as conditions in the mine change or as mining progresses.

15.37

Training

(1) A sufficient number of workers including supervisory personnel shall be trained and assigned to the mine rescue crews and related responsibilities.

Trainer

(2) A competent person shall be appointed as a trainer for mine rescue teams.

Team training

(3) The mine rescue team members shall be trained by the mine rescue coordinator or other mine rescue trainer.

Training information

(4) Information regarding the mine rescue training and operation shall be provided upon request to the board, mine rescue coordinator or an officer.

Candidates

(5) A candidate for the mine rescue team shall possess physical qualifications and competency necessary for mine rescue work.

Training facility

(6) Training facilities shall be provided by the mine or project owner and the workers shall be trained in mine rescue work at the owner's expense.

Costs

(7) A mine rescue operation shall be under the direction of a supervisor in charge of the mine or project and the costs of the rescue operation shall be at the expense of the owner of the mine or project.

Notice of rescue action

(8) As well as the notice required by the *Workers' Safety and Compensation Act*, notice shall be given immediately to the mine rescue coordinator and to the board when the services of a mine rescue crew are required.

MUTUAL AID

A Mutual Aid Agreement is a formal, signed agreement between two mining employers under which one employer provides a mine rescue team, equipment and materials to the other employer in an emergency. This is a vital component of a mine emergency response plan.

Workers' Safety and Compensation Board (WSCB) recommends that employers enter into mutual aid agreements with other employers as part of their mine emergency response plan.

WSCB recommends all underground mines or underground exploration projects operating in the Yukon establish mutual aid agreements with outside sources or emergency agencies capable of providing additional trained personnel and equipment in the event of an emergency occurring at their mine.

WORKERS' SAFETY AND COMPENSATION BOARD - MINE RESCUE EQUIPMENT

WSCB has mine rescue equipment available to use in the event of an emergency occurring at a mine to augment existing rescue capability. It is the responsibility of the mine, or its authorized delegate, to make a request to WSCB to use the equipment. The mine's response manager and the WSCB representative will coordinate logistics to transport equipment to the mine (for example, mine flies SCBAs to scene while WSCB mobilizes trailer to scene). The use and care of the equipment is the mine's or project's responsibility. The return of equipment after use, to WSCB, must be in a timely manner and in the condition it was received when deployed.

The mine rescue equipment available includes:

- 15 BG4 units with spare bottles;
- rescue rope and rigging equipment; and
- a complement of equipment as identified in the Basic Emergency Equipment and Supplies list below.

MINE EMERGENCY RESPONSE PLAN

As required by the *Workers' Safety and Compensation Act*, an employer's health and safety management system must have a mine emergency response plan which must be maintained, kept up to date and followed in the event of an emergency.

MINE RESCUE STATION

A mine must establish, equip and maintain mine rescue stations as required by section 15.36.

Each emergency response station should at a minimum include the following: breathing apparatus, equipment and supplies as identified in the Basic Emergency Equipment and Supplies list below. Operational requirements or predetermined risk factors may necessitate additional breathing apparatus, equipment or supplies, along with transportation logistics to transport the equipment and supplies to the incident scene.

Basic Emergency Equipment and Supplies

Underground mine

- 10 BG-4 or equivalent apparatus for underground mines
- 5 spare oxygen cylinders
- 5 blocks of ice per breathing apparatus
- 100 kg. CO_2 adsorbent
- 2 self-contained self-rescuers (examples: Ocenco, Carevent, Drager Oxy SR 90, Drager Oxy 3000/6000)
- 1 oxygen booster pump
- 4 jumbo cylinders of oxygen (medical-grade oxygen)
- 1 RZ- 25 tester or equivalent
- 2 gas detection devices- electronic or manual with adequate supply of sample tubes
- 10 2-m / 6-ft link lines
- 4 signaling devices
- 2 fire extinguishers
- 2 basket stretchers
- 2 sets of emergency first aid supplies
- 1 oxygen therapy unit
- 1 set of emergency tools, as identified through site-specific assessments
- rescue rope and rigging equipment (practice set and ready-for-use set recommended)

Surface mine

- 6 self-contained breathing apparatus for surface mines
- 6 spare air cylinders
- 2 gas detection devices - electronic or manual with adequate supply of sample tubes
- 12 2-m / 6-ft link lines
- 6 signaling devices
- 2 fire extinguishers
- 2 basket stretchers
- 2 sets of emergency first aid supplies
- 1 oxygen therapy unit
- 1 set of emergency tools, as identified through site-specific assessments
- rescue rope and rigging equipment (practice set and ready-for-use recommended)

Underground exploration

- 4 BG-4 or equivalent apparatus, or 4 open-circuit self-contained (1-hour duration) or equivalent apparatus
- 4 spare oxygen / air cylinders
- 4 blocks of ice for use with BG-4 breathing apparatus
- 20 kg. CO_2 absorbent
- 1 self-contained self-rescuer (examples: Ocenco, Carevent, Drager Oxy SR 90, Drager Oxy 3000/6000)
- 1 RZ-25 tester or equivalent or an offsite arrangement for service
- 2 gas detection devices- electronic or manual with adequate supply of sample tubes
- 4 – 2-m / 6-ft link lines
- 2 signaling devices
- 2 fire extinguishers
- 2 basket stretchers
- 2 sets of emergency first aid supplies
- 1 oxygen therapy unit

Note: It is recommended that the basket stretcher contains a set of tools that may include but should not be limited to the following: axe, measuring device, claw hammer and nails, scaling bar, shovel, saw, rescue rope and rigging, lockout locks and PPE.

Equipment maintenance

A competent, qualified worker should be appointed to ensure the care and maintenance of all rescue equipment. This person should also maintain appropriate logbooks to record the condition of all equipment used for mine rescue or firefighting.

Mine rescue breathing apparatus and all rescue equipment must be maintained, stored and used in accordance with manufacturer specifications and "best practice" industry standards by competent and qualified persons.

MINE RESCUE TEAMS

Mine rescue teams must be established, maintained and equipped with workers who have been trained, as specified in sections 15.36 and 15.37.

Underground mines

Mine rescue teams equipped with trained mine rescue workers should be established and available in the event of an emergency.

a) If there are 10 or fewer persons working underground at any one time, there should be:
   - 1 mine rescue team;
   - a minimum of 4 persons trained in mine rescue present at all times; and
   - access to at least 10 trained mine rescue workers, available within a reasonable response time.

b) If there are more than 10 persons, but less than 50 working underground at any one time, there should be:
   - 2 qualified mine rescue teams;
   - a minimum of 4 persons trained in mine rescue present at all times; and
   - access to at least 10 trained mine rescue workers, available within a reasonable response time.

c) If there are 50 or more persons working underground at any one time, there should be:
   - 3 qualified mine rescue teams;
   - a minimum of 4 persons trained in mine rescue present at all time; and
   - access to at least 10 trained mine rescue workers, available within a reasonable response time.

Note: Mine rescue workers working on shift should not all be working underground at the same time.

Team complement

The required complement of an underground mine rescue team is 6 trained and qualified members. There must be 1 designated team captain, 1 designated vice-captain, and 1 designated coordinator.

Surface mines (open pit)

Mine rescue teams equipped with trained mine rescue workers should be established and available in the event of an emergency.

(a) If there are 25 or fewer persons working in an open pit at any one time, there should be:

- a minimum of 4 persons trained in mine rescue; and
- access to at least 6 trained mine rescue workers, available within a reasonable response time.

(b) If there are more than 25 persons working in an open pit at any one time, there should be:

- 1 mine rescue team;
- a minimum of 4 persons trained in mine rescue present at all times; and
- access to at least 6 trained mine rescue workers, available within a reasonable response time.

Team complement

The required complement of a surface mine rescue team is 6 trained and qualified members. There must be 1 member designated team captain and 1 designated vice-captain.

Underground exploration

Mine rescue teams equipped with trained mine rescue workers should be established and available in the event of an emergency.

(a) If there are 10 or fewer persons working underground at any one time, there should be:

- 4 persons trained and equipped in mine rescue to provide first-response and assessment capabilities; and
- access to at least 6 trained mine rescue workers, available within a reasonable response time.

(b) If there are more than 10 persons underground at any one time, there should be:

- one mine rescue team;
- a minimum of 4 persons trained in mine rescue present at all times; and
- access to at least 6 trained mine rescue workers, available within a reasonable response time.

Team complement

The required complement of an underground exploration mine rescue team is 6 trained members. There must be 1 member designated team captain and 1 designated vice-captain.

MINE RESCUE TRAINING AND CERTIFICATION

A comprehensive orientation and training system must be established for all persons working underground (survival mine rescue), including the use of approved self-rescue apparatus, warning system (typically stench gas), ventilation, ground control, and the use of firefighting equipment in place at the mine.

All persons employed at the mine, including contractors and visitors, must be provided underground orientation before entering the underground mine.

WSCB certifies individuals in mine rescue training as provided by section 15.37(3) of the WHS Regulations.

An individual is considered trained and qualified in mine rescue and is eligible to be assigned to a mine rescue team when all of the following requirements are met:

- is minimum age of 18 years;
- has adequate knowledge of the language normally used at the mine;
- holds a valid standard first aid certificate or higher and a transportation endorsement (including spinal immobilization);
- does not have perforated eardrums (tympanic membranes);
- is free from facial hair or jewelry that could interfere with the face-piece seal of any breathing apparatus;
- has a minimum of 10 hours practice as part of a team during each quarter of the year the mine or exploration project operates;
- is appropriately trained to use self-contained breathing apparatus, under air/oxygen;
- is medically fit for the nature of the work required, (pre-course medical performed by a physician followed by renewed medical at maximum of two-year intervals);
- has achieved a 70% overall score from a combination of the written, practical and skills demonstration to receive a basic mine rescue certificate; and
- is familiar with the mining conditions, practices, hazards and equipment encountered, or that may exist in their place of work (for example, underground orientation, ventilation and ground control training, or surface geography/terrain and adverse weather conditions).

MINE PLANS AND OTHER RECORDS

Records and information required under section 15.04 of the WHS Regulations must be readily available for the use of mine rescue teams during an emergency and for training purposes.

Records of all mine rescue training must be maintained at the mine site or exploration project**.** Records must contain the particulars of the training conducted, including dates and durations of the exercises, the content covered, as well as the names and signatures of all participants and the trainer.

The logbook must note the pre and post-training condition of all equipment used during the training session.