METHODS ADOPTED FOR RESCUE AND RECOVERY

BY
DR. P. S. PAUL

STEPS TO BE FOLLOWED

➢ Examination of Mine Openings

1. Afterdamp may be found near openings
2. Tests for methane, carbon monoxide, and smoke can aid in determining the order in which the openings should be explored

➢ Establishing Ventilation

If the ventilation fan has not been destroyed or damaged, it should be kept running

Methods Adopted for Rescue and Recovery

➢Entering Mine and Establishing Fresh Air Base

Exploration of the mine should be started when

- ➢The necessary organization has been formed,
- ➢Equipment and materials assembled, and
- ➢Ventilation established

Establishing Fresh Air Base

- •The base may be on surface or underground, as conditions require, but should be as near the emergency area as possible
- •The fresh air base is the base of operations from which the rescue team advances into unbreathable atmospheres
- •It functions as a base of communication for the rescue operation, linking the team, the control centre and support personnel
- •The Fresh Air Base Coordinator and assistants are stationed at the fresh air base
- •Rescue crews begin their operations from the base
- •Continual checking of atmospheric air of the base for mine gases and smoke is necessary

Methods Adopted for Rescue and Recovery

The essentials of a fresh air base should include the following

i. An assured supply of fresh air

ii. An assured travelway in fresh air for workers and material traveling to the surface

iii. Communications with the control centre and with the Captain of the team on the mission

iv. The best illumination possible

v. Sufficient room to permit work without confusion

vi. First aid supplies

vii. Necessary tools and equipment

viii. Oxygen (O_2) and carbon dioxide (CO_2) absorbent

Methods Adopted for Rescue and Recovery

➢ Establishing Telephone Communication

- As recovery work progresses, the telephone system should be extended to stay abreast of rescue efforts
- Additional telephones should be installed
- only permissible telephones should be used

➢ Duties of Rescue Crews

❑ Rescue crews should consist of rescue trained men and equipped to

i. make explorations,

ii. work in irrespirable air, and

iii. rescue mining personnel

❑ Rescue crews must work in close cooperation with recovery crews by making explorations ahead of fresh air to

i. reach live men,

ii. locate bodies,

iii. test the mine air,

iv. look for and extinguish small fires, and

v. erect stoppings where respiratory protection is required

Duties of Recovery Crews

- Recovery crews are composed of

i. brattice men,

ii. men for handling and transporting material,

iii. telephone attendants,

iv. timbermen, trackmen, and

v. other related personnel.

- They should not be permitted to go ahead of fresh air

➢ Explorations Ahead of Fresh Air

i. After a fresh air base has been established, exploration should be done ahead of fresh air by rescue crews wearing oxygen-breathing apparatus.

ii. The crews should look for live men, spot fires, locate bodies, and observe conditions.

iii. The length of trips from the fresh air base should be predetermined based on the location and apparatus used

iv. Another oxygen breathing apparatus crew, equipped with adequately charged apparatus in good condition, should always be held in reserve at the air base.

v. Before leaving the fresh air base, the exploration crew should be instructed by the rescue team captain to examine and test the equipment.

vi. After proceeding about 50 to 100 feet, the apparatus of each crewman should again be examined by the team captain.

vii. Should proceed slowly in single file about 6 feet apart and also Carrying a lifeline for giving signals.

viii. Should examine the roof and roadway and make a running record of progress

ix. They should mark with chalk the direction of travel with arrows pointing to the fresh air base at frequent intervals and at all corners turned.

➢ Restoring Ventilation

- ❑ If an explosion has affected a large area, many temporary stoppings will be required to restore ventilation.

  Temporary stoppings should be constructed near mine openings or other places where they will be subjected to considerable pressure.

  Temporary stoppings should be set at least 4 to 6 feet inbye crosscuts or other openings to leave space for later construction of stronger and tighter stoppings.

  As soon as possible, semipermanent or permanent stoppings should be erected to replace temporary stoppings.

  A man should be assigned on each shift to patrol all temporary stoppings and to keep them as airtight as possible.

Methods Adopted for Rescue and Recovery

- In ventilating any portion of a mine after an explosion, the afterdamp should be conducted to the outside by the most direct route.

  Adequate air currents should be conducted so that ventilation will always be under the control of the man in charge of the shift and the path of the air is traveling will always be definitely known.

  If possible, all sections, entries, rooms, and other open accessible workings should be cleared of afterdamp as work advances.

  Line brattice will be required for ventilating faces of entries and rooms or to split the air current in entries when it is necessary.

Dealing With Fires Encountered During Exploration

i. Fire, if any, should be extinguished with water, rock dust, or fire extinguishers before the fresh air advances to the fire.

ii. If a fire is of such proportions that it cannot be extinguished, it should be sealed promptly and effectively

Methods Adopted for Rescue and Recovery

➢ Rescue and Removal of Live Men

i. Sometimes live men are found in the open passageways inbye the fresh air base.

ii. As soon as possible after live men are brought to safe air, they should be given additional oxygen to breathe.

iii. Occasionally, live men are found behind barricades erected to protect themselves from afterdamp.

➢ Handling Bodies

i. All bodies found in the mine should be wrapped in brattice cloth or canvas by the recovery crews and transported to the morgue.

ii. It is suggested that disinfectant, such as Creolin or Lysol and rubber gloves be used.

iii. A tag should be attached to each body.

iv. If the location has not been marked previously on the roof or rib, this should be done by the recovery crew.

Methods Adopted for Rescue and Recovery

v. The location, position of the body, and check number or name also should be marked on the mine map.

vi. Items removed from a body should be given to a designated person to be turned over to the morgue official or relatives of the victim.

➢ Setting Timbers Supports

Timber crews should dress dangerous roof and set necessary timbers as soon as possible, as protection for rescue and recovery crews and others who are required to travel

➢ Clearing Roadways

- ❑ Roadways should be cleared of falls and debris
- ❑ Necessary repairs should be made to the haulage tracks as soon as possible after an explosion

Methods Adopted for Rescue and Recovery

- If tests indicate explosive gas accumulations, battery-powered transportation equipment should be used instead of using trolley-pole or cable-reel locomotives

Preparation for Resuming Operations

i. First, mine officials will investigate the mine

ii. Crews should make any repairs necessary to prepare the mine for safe operation based on the recommendations of the mine officials

iii. Then, regional Inspectors will investigate the mine

iv. Crews should repair the mine based on the recommendations of the Inspectors

v. Again, special team from DGMS will inspect the mine whether mine management implemented the earlier recommendations or any other modification necessary before given order to resume operation


Thank You