

## **CIRCULARS - 1995**

**DGMS(Tech) Circular No.1 of 1995**

**Dhanbad, dated 17.2.95.**

To  
The Owners/Agent/Manager  
of all opencast mines.

### **Sub: Danger due to lighting/storm during blasting operation in mines**

Recently, three accidents took place due to premature blasting by lightning when persons were killed/injured/escaped while they were in the process of charging explosives/connecting detonators etc. The accidents occurred as mentioned below:

- 1) While nine deep holes and a number of secondary holes were being charged to be connected in series and fired, a lightning discharge due to thunder storm caused premature firing of the deep holes, killed three persons and inflicting serious bodily injuries to one.
- 2) While a Blaster was carrying 100 primed cartridges of explosives with electric detonators in a cardboard box on his shoulder, the cartridges exploded suddenly resulting in instant death of the Blaster.
- 3) While a Blaster and his helpers, after charging of the holes were about to take shelter, suddenly there was a lightning/thunder storm resulting in premature blast of the holes. Persons escaped unhurt.

Accidents due to above causes continue to occur despite very clear safety precautions laid down while granting permission under Regulation 106(2)(b) of Metalliferous Mines Regulations, 1961 and Regulation 98 of Coal Mines Regulations, 1957 and also Circulars issued by DGMS recommending additional precautions to prevent such accidents. These precautions in brief are given below:

- (i) Shots shall not be fired except during the hours of day light or until adequate artificial light is provided. All holes charged on any one day shall be fired on the same day, as far as practicable.
- (ii) As far as practicable the shot firing shall be carried out either between shifts or during the rest interval or at the end of work for the day.

During the approach and progress of an electric storm, the following precautions shall be taken:

- a) Neither explosives nor detonators shall be handled;
- b) If charging operations have been commenced, the work shall be discontinued until the storm has passed;
- c) If the blasting is to be fired electrically, all exposed wires shall be coiled up and if possible placed in the mouth of the holes or kept covered by something other than a metal plates;
- d) All wires shall be removed from contact with the steel rails of a haulage track, so as to prevent the charge being exploded prematurely by a local strike of the lightning;
- e) If the firing circuit has been set up before the thunder storm came on, the persons at the site should withdraw at the earliest and the blast should be fire off immediately;
- f) All the persons shall be withdrawn from the danger zone.

To,  
The Owners, Agents and Managers  
of all Coal Mines.

**Sub: Prevention of accidents due to explosions in Coal Mines**

A study of explosions/ignitions that occurred in coal mines during the last 20 years has revealed that the source of ignition originated from the electrical equipment. The different courts of enquiry set up after the occurrences highlighted over and again the importance of a programme in inspections at regular intervals to ensure installation and proper maintenance of approved type of equipment and maintenance of essential safety features (viz. intrinsic safety/FLP) in good order.

The inspections of mines made by the officers of the Directorate during the last few months however have revealed that approved types of equipment are not being used always in underground mines and the standard of maintenance of safety features in the electrical equipment is not very satisfactory.

You are requested to organize a special drive in your underground mines to identify any contravention in respect of use of different equipment and accessories, standard of maintenance of safety features in electrical equipment being used and take suitable remedial measures. Proper systems for inspection of all electrical equipment and schedules for maintenance are also required to be formulated and enforced. A minewise report may be sent to this Directorate by 15th February, 1996.