



Govt. of India
Ministry of Labour and Employment
Directorate General of Mines Safety



No.DGMS(Tech)/Circular No. 09 Dhanbad, Dated the 02-12-2008

To
Owners of All
Coal and Metalliferous mines.

Subject: Modified standard condition stipulated under regulation 98 of Coal Mines Regulation – 1957 and regulation 106 of Metalliferous Regulation 1961 for Using HEMM in Open cast mines.

The condition for adopting a system of deep- hope blasting and /or working opencast mines with the help of heavy machinery for digging, excavation and removal of ore etc. under Reg.106 (2) (b) of MMR 1961 and regulation 98 of Coal Mines Regulation – 1957 were issued vide circular No. 36 of 1972 and 17 of 1977. These were framed way back in seventies where the capacities of dumpers were limited. With changing scenario and introduction higher capacity equipment this needs review.

Number of incidence and accidents has taken place due to –

1. Head on collision of dumper on haul road due to poor clear view.
2. Front and rear collision of dumpers on haul road.
3. In advertent movement of steering wheel among with tyre while maintenance of dumper where engine is ON.
4. Due to work person crossing the blind space in and around.
5. Dumper getting off haul road due to inadequate parapet wall /embankment.
6. While dumper being reversed

In order to prevent accident the standard condition are modified. These are addition to be standard condition issued earlier and not the substitute.

1. HEIGHT AND WIDTH OF HAUL ROAD.

- a. No road shall be of width less than three time plus 5m width of the largest Vehicle playing on road.
- b. All corner and bends shall be made in such a way that operator of vehicle have clear view of distance of not less than 3 times the breaking distance of largest HEMM working at 40Km/hour.

- c. Where it is not possible to ensure a visibility for a distance as mention in (b) there shall be provided with two roads of width not less than 2 times plus 3m of largest vehicle plying on the road with a strong road divider at centre with adequate lighting and reflector along the divider.
- d. Where any road existing above level of surrounding area it shall be provided with strong parapet wall/embankment of following dimensions.
 - i. Width at top-not less than 1m.
 - ii. Width at bottom-not less than 2.5m.
 - iii. The height not less than the diameter of tyre of largest vehicle playing on road

It may be noted that just dumping of mud or OB shall not treated as strong parapet wall.

- e) No road shall have gradient more than 1 in 16. Ramps with 1 in 10 gradients should not be more than 10m at one stretch and permission shall be obtained from Directorate.

2. **DUMPER:** The following safety feature shall be provided in dumper.

- i. Mechanical steering locking to prevent untoward movement of steering wheel and tyre while work persons working below the cabin while engine is running.
- ii. Blind spot mirror apart from rear view mirror to enable operator to have clear visibility of blind spot in and around dumpers.
- iii. Mechanical type Anti collision device to avoid head to tail collision on haul road such as tail gate, bumper extension or any other strong device .
- iv. Fire resistant hydraulic hoses in place of ordinary hoses to decrease the chance of fire. All the sleeves and conducts where cable /wire are passed shall be fire resistant.
- v. Seat belt for operator
- vi. The maximum speed of vehicle shall be restricted to 30Km/hours by blocking higher gear or any other automatic means.
- vii. Proper shaft guard
- viii. Proximity working device.

3. **Excavators:** The following safety feature shall be provided

- i) All functions cut off switch
- ii) Swing Motor Brake
- iii) Fire resistant hydraulic hoses in place of ordinary hoses to decrease the chance of Fire. All the sleeves and conducts where cable /wire are passed shall be fire resistant.
- iv) Turbo charge Guard
- v) Seat belt
- vi) Vent valve on top of hydraulic tank should be able to be removed without any tool
- vii) A baffle plate between cold zone and hot zone.
- viii) Provision for Limiting of hydraulic cylinders - Stoppers

4. **DRILLS:** The following safety feature shall be provided

- 1) **Approved type of dust prevention or suppression system**
- 2) Each moving parts of the machinery shall be guarded / fenced and also ensure its effectiveness all the time.
- 3) i) Emergency of push bottom in
 - a) Operator's cabin.
 - b) Main frame.
 - c) Propeller pendent
 - d) Rear end
- ii) Tripping device to trip the field switch.
- 4) Thermostat motor protection relay in winding temperature and other related parts.
- 5) Explosive vent in transformer.
- 6) Propel interlock (an electric interlock between drilling and propeller operation).
- 7) High air discharge temperature switch.
- 8) Low lub oil pressure switch.
- 9) Oil stop valve (electric solenoid valve in compressor lubrication line.
- 10) No bump circuit.
- 11) Tower lock and lock check valve.
- 12) Propel joystick -spring loaded type to return to neutral (dead man safety).
- 13) Disk-brake and brake valve and its testing parameters.
14. Lock check valve for preventing creeping in drill.
- 15) Seat belt.
- 16) Fire resistant hydraulic hoses and wiring near hot zone
- 17) Turbo charge guard.
- 18) Cabin for the operator.

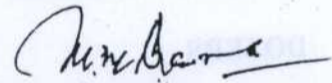
5. **DOZERS**

- 1) Roll over protection
- 2) Turbo charge guard.
- 3) Fire resistant hydraulic hoses and wiring near hot zone
- 4) Seat belt

6.0 GENERAL:

- 1) The approved type of audio visual alarm shall be provided in all equipment.
- 2) The approved type of fire suppression system shall be provided in all equipment.
- 3) The stability of HEMM shall be carried out at least once in year and after every major over haul by an independent agency.
- 4) The crane and overhead crane shall be subject to proof load test and NDT test once in a year from a competent authority.
- 5) The pressure vessel receiver are subjected to hydraulic and NDT test and shall be carried out by a competent authority.
- 6) In case of any defect in equipment such as brake, steering, and safety device the equipment shall be immediately taken out of use and a record shall be kept.
- 7) The code of practice for installation operation and maintenance of all equipment shall be prepared and implemented before putting the equipment to use in mine.
- 8) The safety feature recommend in equipments shall be a part of notice inviting tender for new procurement and the design and drawing shall be obtained from OEM for fitting the same in old equipment .
- 9) The lay out of the workshop shall be required DG Circular No. 8 of 2003.

I am of the opinion that the above modified condition may help in reducing incidence and accidents in mines. Hence the recommendation may be strictly complied in the interest of safety.



Director General of Mines Safety