



भारत सरकार/ Government of India
श्रम एवं रोजगार मंत्रालय
Ministry of Labour & Employment
खान सुरक्षा महानिदेशालया
Directorate General of Mines Safety
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No.H1/SATTUPALI OCP-I/Perm/2005/ 1830

Hyderabad, dated the 27/9/2005

पेषक

खान सुरक्षा निदेशक,
हैदराबाद क्षेत्र-1
गुहाकल्पा, ब्लॉक-2
एम जे रोड, नामपल्लि,
हैदराबाद-500001

सेवा में

अभिकर्ता एवं प्रबंधक,
सत्तुपल्ली पोखरीय Project-I खदान,
M/s. सिंगरेनी कालरीज कं. लि.,
PO: सत्तुपल्ली - 507302,
खम्मम जिल्ला (AP)

महोदय,

विषय: Permission to work mechanised opencast coal mine using Heavy Earth Moving Machinery and adopting Deep Hole Blasting under Reg.98(1) & 98(3) of the Coal Mines Regulations, 1957 at Sattupalli Opencast Project - I of M/s. Singareni Collieries Company Limited.

Please refer to your letter No KGM/STPL OC/2005/67/150 dated 26-04-2005 alongwith the plans and sections enclosed therewith on the above subject.

The matter has been considered in the light of what has been mentioned in the application under reference and shown on the accompanying plans. In exercise of the powers conferred on the Chief Inspector of Mines (also designated as Director-General of Mines Safety) under Regulations 98(1) & 98(3) of the Coal Mines Regulations, 1957 and by virtue of the authorisation granted to me under Section 6(1) of the Mines Act, 1952 by the Chief Inspector of Mines (also designated as Director-General of Mines Safety), I hereby permit you to work Sattupalli Opencast Project-I mine with Heavy Earth Moving Machinery and to adopt Deep Hole Blasting as shown on plan No.Kgm/STPLOC1/2005/2/Sheet-1 to Sheet-4 dated 22-3-2005, subject to the following conditions and the conditions given in the Annexure-A being strictly complied with:

- 1.0 Blasting operation shall not be conducted within a distance of 300m of any structure or residential area, market or roads, without obtaining a written permission from the Directorate. A study shall be conducted in advance by a Scientific Organisation for finding the safe charge against any distance for conducting controlled blasting, while approaching such area.
- 2.0 A scheme of negotiating faults, if any, within a given time frame, shall be framed so as to safely negotiate faults and also prevent stagnating of faces about the fault, especially during rainy seasons or immediately thereafter.
- 3.0 The overall pit slope shall not exceed $37\frac{1}{2}^{\circ}$ from horizontal. Correspondingly, the limiting distance of advance of the bench in Thick Seam and Split Seam shall be 109m and 143m respectively, as measured from the vertical plane passing along the line of advance of the uppermost bench in alluvium. The limiting lines as above shall be prominently marked in the working plan as well as with prominent markers physically on surface in the pit.

30/5/04

- 4.0 For maintaining the final slope configurations and monitoring the ground movement along the final slope, the following shall be strictly followed:
- 4.1 Permanent survey points are to be established in each bench of the final slope at an interval of 200m for monitoring the ground movement, if any. Survey shall be conducted atleast once in a week at all such established points to note ground movement, if any. The details of such survey shall be recorded in a bound paged book kept for the purpose and shall be signed and dated by the person making the survey and also by the Manager;
- 4.2 Drainage arrangement shall be established in benches of the ultimate pit slope for diverting rain/other water flow away from the working area in a systematic manner.
- 5.0 The opencast workings shall not be advanced with blasting to a point within the danger zone as measured from the edge of the acquired land of R & B Department for the roads as indicated in the enclosed plans, till a written permission is obtained from this Directorate.
- 6.0 For effectively monitoring and controlling spontaneous heating and other open fires in the coal benches and in other area, a proper Fire Fighting Organisation shall be constituted in the mine under direct control of a person holding First Class Certificate of Competency. It shall be the duty of the fire fighting team to always ensure that adequate fire fighting facilities including a high pressure water spraying line along the exposed benches in Thick Seam and also Split Seam are established and kept/maintained in working order. The fire fighting team shall also ensure that, normally, there is no fire in the mine. A daily record shall be maintained of the activities of the fire fighting organisation and shall be signed by the head of the team.
- 7.0 Persons shall not be engaged in any place in the mine where there is dangerous concentration of noxious gases. Concentration of noxious gases shall be monitored before engaging persons in the coal and nearby overburden benches and thereafter at regular intervals not exceeding two hours.
- 8.0 **Please note that, this permission is subject to the following additional conditions:**
- 8.1 In the event of any change in the circumstances connected with this permission which is likely to endanger the life of workmen employed in the mine or endanger the mine, the mining operations for which this permission has been granted shall be stopped forthwith and intimation thereof sent to this Directorate. The said mining operations shall not be resumed without an express and fresh permission in writing from this Directorate
- 8.2 This permission is being issued specifically under the regulations mentioned above, and without prejudice to any other provisions of law including the provisions contained in the Mines and Minerals (Regulations and Development) Act, 1957 and the Mineral Concession Rules, 1960, which may be or may become applicable at any time.
- 8.3 If at any time any one of the conditions subject to which this permission has been granted is violated or not complied with, this permission shall be deemed to have been revoked with immediate effect. The above permission may be amended or withdrawn at any time, if considered necessary, in the interest of safety.
- 8.4 This Directorate shall be informed as soon as the mining operations are commenced in accordance with the above permission and intimation about completion of mining operations shall also be sent promptly and in any case not later than one month thereof.

भवदीय,

22/11/85
(ए वहीद)

खान सुरक्षा निदेशक,

हैदराबाद क्षेत्र-1

संलग्न: अनुलग्नक

(Enclosure to permission letter no. H1/Sattupalli OCP-I/Perm/2005/ 1630 dated 27/7/05)

Conditions for exemption under Regulation 98(1) and Reg.98(3) for working the opencast mine with heavy earth moving machinery and for adopting a system of deep-hole blasting under 161(1) & 168(5) of the Coal Mines Regulations 1957 at Sattupalli Opencast Project mine.

I – OPENCAST WORKINGS

- 1.0 Height and Width of Benches etc.:
- 1.1 The height of the benches shall not be more than the reach of the machine used for digging, excavation or removal.
- 1.2 The width of any bench shall not be less than:
- i) the width of the widest machine plying on the bench plus two meters
or
 - ii) if dumpers ply on the bench - three times the width of the dumper,
or
 - iii) the height of the bench,
- whichever is more.
- 1.3 Quarrying operations shall be conducted from top downwards.
- 1.4 The provisions of Sub-regulation (4) & (5) of Regulation 98 of the Coal Mines Regulations 1957 shall be complied with.
- 1.5 When persons are employed within 5m of the working faces, adequate precautions shall be taken to ensure their safety by dressing the sides of the benches.
- 1.6 Special care shall be taken when any slip or other planes of weakness or other geological disturbances exist, so as to prevent danger to the work-persons. Workings shall not be extended within 15m of the geological disturbances lying near the boundary. However, if due to presence of the geological disturbances within the property, the workings are to be extended within 15m of the geological disturbances, it shall be ensured that:
- i. the height of the benches does not exceed 5m and width of the bench is not less than twice the width of the normal benches,
 - ii. benches are formed in such a manner that these crosses the disturbed area in one pass only and
 - iii. No highwall is left along the disturbed plane.
- 1.7 Soft overburden, which consists of Black Cotton Soil, alluvial soil, clay etc. shall be removed by only backhoe shovel cutting below the level on which it stands. The height of benches shall not exceed 5.0m and width thereof shall not be less than 10m.
- 1.8 No person shall be engaged or work or be allowed to travel close to high sides/edge of benches, from which he will be likely to fall more than 1.8m vertically down, unless he is provided with and uses a safety belt or rope.
- 2.0 Fencing around Opencast Workings:
- 2.1 The top edge of the opencast working shall be kept fenced with wire rope strands or barbed wire, supported by posts (movable) of timber, iron or concrete as detailed in Circular No.11 of 1959.
- 2.2 At the finishing stage, opencast workings shall be fenced with masonry wall using lime mortar not less than 0.40m thick and not less than 1.2m high, with a parapet top

3.0 Spoil Banks:

- 3.1 (i) The slope of a spoil - bank face shall be determined by the natural angle of repose of the material being deposited, but shall in no case exceed $37\frac{1}{2}^{\circ}$ from the horizontal. The spoil - bank face shall not be retained by artificial means at an angle in excess of its natural angle of repose.
- (ii) Any spoil – bank, exceeding 30m in height, shall be benched so that no bench exceeds 30m in height and the general slope does not exceed 1.0m vertical to 1.5m horizontal.
- 3.2 (i) The toe of a spoil – bank, dump or stack face shall not be allowed to approach a railway or other public works, public road or building or other permanent structures not belonging to the Owner of the mine, closer than a distance equal to the vertical height(s) of its face.
- (ii) A suitable fence shall be erected between any railway or public works or road(s) or building or structure(s) and the toe of an active spoil- bank so as to prevent unauthorised persons from approaching the spoil-bank.
- 3.3 No person shall approach or shall be permitted to approach the toe of an active spoil-bank where he may be endangered from material rolling down the face.
- 3.4 Unless otherwise permitted, Backfill method of dumping spoil shall be put in use and it shall be ensured that as far as possible original profile of the ground is maintained after extraction of coal/ore. Possibility of slide of the backfill shall be monitored.

4.0 Roads for Trucks and Dumpers etc.:

- 4.1 All roads for trucks, dumpers or other mobile machinery shall be maintained in good condition.
- 4.2 Where practicable, all roads from the opencast workings shall be arranged to provide one way traffic in which the width of the road shall not be less than one and a half times the width of the largest vehicle plying on that road. Where this is not practicable, no road shall be of a width less than three times the width of the largest vehicle plying on that road unless, definite turnouts and waiting points are designated.
- 4.3 All corners and bends in roads shall be made in such a way that the operators and drivers of vehicles have a clear view for a distance of not less than 30m, along the road.
- Wherever it is not possible to ensure a visibility for a distance of 30m there shall be provided two roads for the up and down traffic with a median.
- 4.4 Except with the express permission of the Chief Inspector in writing and subject to such conditions as he may specify therein, no road shall have a gradient steeper than 1 in 16 at any place, provided that in case of Ramps over small stretches a gradient upto 1 in 10 may be permitted.
- 4.5 Where any road exists above the level of the surrounding area, it shall be provided with strong parapet walls or embankments not less than 1m in height to prevent any vehicle from getting off the road.
- 4.6 Road signs with iridescent paint shall be provided at every turning point for guidance of drivers especially at night times.
- 4.7 At every curve, parapet walls or vertical posts with 'Zebra' line shall be provided to help the drivers to keep the transport vehicle on the track especially at night times.

5.0 Supervision:

- 5.1 During every production shift, the opencast workings shall be placed under the charge of an Under/Assistant Manager and during maintenance shift the workings shall be placed under the charge of an Overman, who shall be responsible to see that all the regulations and the orders made there under are strictly complied with.

6.2 He shall in particular:

- i) make frequent inspections for evidence of slides or of material that may slide or roll from the high wall (including the face and sides) or spoil-bank. Additional inspections shall also be made after every heavy rain for checking the stability of high sides/walls,
- ii) not allow any person to work under overhanging ledges or where there is evidence of impending slides, until such danger has been removed,
- iii) ensure that every person engaged in dressing operations on high walls is provided with and uses a safety belt of a type approved by the Chief Inspector;
- iv) ensure that all loose material is removed from high sides/ wall before drillers are engaged there,
- v) ensure that parapet walls along roads are properly maintained and
- vi) ensure that men and machines aren't allowed to work in close proximity of each other which may endanger men by falling rock or otherwise.

II – DRILLING & BLASTING

The works of drilling and blasting, including issue and transport of explosives, in the quarry shall be placed under the charge of a person possessing at least 1st class Managers Certificate of Competency (hereinafter called 'Blasting Officer').

6.0 Precautions While Drilling:

- 6.1 The position of every deep hole to be drilled shall be distinctly marked by the Blasting Officer so as to be readily seen by the drillers.
- 6.2 (i) No drilling shall be commenced in an area where shots have been fired, until the Blasting Officer has made a thorough examination at all places, including remaining butts of old deep holes, for unexploded charges that the drill may strike.
- (ii) No drill or bore rod or pick shall be inserted in butts of old deep holes even if an examination under Clause (i) has failed to reveal presence of explosives.

7.0 Bulk Transport of Explosives:

Where explosives are transported in bulk for deep hole blasting the precautions laid down in Regulation 164 A of the Coal Mines (Amendment) Regulation, 1971 (vide Notification No. G. S. R. 568 dated 17.4.71) shall be strictly complied with.

8.0 Precautions during Charging of Deep holes:

- 8.1 Explosives shall be delivered first in the hole farthest from the 'priming station' so as to avoid persons walk in amongst piles of explosives.
- 8.2 Not more than one hole shall be in the process of being charged at any one face at any one time.
- 8.3 All work of charging, stemming and connecting up, shall be done while standing 'on the solid' that is to say, on the side of holes remote from the quarry face.
- 8.4 (i) Drilling and charging of deep holes shall not be carried out in the same area at the same time.
- (ii) Drilling operation shall not be carried out simultaneously on two benches, at places directly one above other

9.0 Precautions during Firing of Shots

- 9.1 Shots shall not be fired except during the hours of daylight 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 the Shotfiring shall be carried out either between shifts or during the rest interval or at the end of work for the day.

- 9.2 During the approach and progress of an electric storm/ lightning, precautions as detailed in Cir. Sapicom Tech. 1/1995 shall be taken.
- 9.3 (i) Precautions with regards to taking shelter, etc., as laid down in Regulation 170 of C.M.R. (Third Amendment) Regulation, 1974 (vide Notification No. G.S.R. 1092 dated 20.9.74) shall be complied with.
- (ii) No person other than Shotfirer and his assistants, if any, shall be permitted to remain within a radius of 60m from where charging of holes with explosives is being carried out.
- 9.4 The preparation of charges and the charging and stemming of holes shall be carried out under the personal supervision of an Overman who shall fire the shots in deep-holes himself.
- 10.0 Monitoring of Deep Hole Blasts: All the deep hole blasts shall be measured for monitoring Blast Induced Ground Vibration as per guidelines detailed in DGMS Circular No. Cir. (Tech) 7 of 1997.

III – MACHINERY

11.0 Design & Maintenance of Machinery & Vehicles:

11.1 Every equipment of drilling and earth moving machinery or equipment (hereinafter called 'Machine') and every truck, dumper (hereinafter called 'Vehicle') etc., shall be maintained in good and safe working condition.

11.2

- (i) Every machinery or vehicle shall be provided with efficient warning devices, adequate front and rear lights and efficient brakes. Every Dumper/Truck shall be provided with Audio – Visual warning device which shall be actuated automatically to produce both audible and visual warning system during reversal of vehicle.
- (ii) Every shovel or dragline shall be so designed as to afford the operator clear and uninterrupted vision all around and shall be provided with portable lamp for emergency, suitable portable fire extinguishers and retracting ladder.
- (iii) Operator's cabin of every machine or vehicle shall be well designed and substantially built so as to ensure adequate protection to the operator against heat, dust, noise etc. and at the same time provide adequate safety to the operator in the event of overturning of Heavy Earth Moving Machinery. A seat belt for the safety of the operator shall also be provided.

11.3

- (i) Provisions of Regulation 186 of C.M.R. 1957 shall be complied with.
- (ii) The code of instructions furnished by the manufacturers in the matter of maintenance of various machinery and vehicles and preventive maintenance schedules for each type of machinery and vehicle shall be strictly followed.
- (iii) Every machine and vehicle shall be allocated at least one day in every week for maintenance. Before the machine or vehicle is sent out for work after maintenance, it shall be thoroughly inspected by the Engineer, mechanical foreman or other competent person, authorised by the Manager in writing, who shall satisfy himself that the machine or vehicle is mechanically sound and in efficient working order.

A report of every inspection made under clause (iii) shall be recorded in a bound paged book kept for the purpose, and shall be signed and dated by person making the inspection and countersigned by the Engineer.

Every machine in use shall be thoroughly inspected once at least in every 24 hours by a competent person duly authorised by the Manager of the mine. Any damaged or worn out parts shall be replaced immediately.

- (v) Every machine in use shall be thoroughly inspected once at least in every 24 hours by a competent person duly authorised by the Manager of the mine. Any damaged or worn out cable shall be replaced immediately.
 - (vi) A report of every inspection made under Clause (v) shall be recorded in a bound paged book kept for the purpose and shall be signed and dated by person making the inspection and countersigned by the Engineer.
- 11.4 If the engineer, mechanical foreman or other competent person making an inspection notices any defect in any machinery or vehicle the said machinery or vehicle shall not be used until the defect has been remedied.
- 11.5 Any defect in a machinery or vehicle reported by its operator shall be promptly attended to
- 11.6 Any machine or vehicle found to be in an unsafe operating condition shall be tagged at the operator's position "OUT OF SERVICE DO NOT USE" and its use shall be prohibited until the unsafe condition has been corrected.
- 11.7 All repairs to a machinery or vehicle shall be done at a location which will provide a safe place for the persons engaged on repairs.
- 11.8 Except for testing trial or adjustment, which must necessarily be done, while the machine or vehicle is in motion, every machine or vehicle shall be shut down and positive means taken to prevent its operation while any repair or manual lubrication is being done.
- 11.9 Any machinery, equipment or part thereof which is suspended or held apart by use of slings, hoists or jacks shall be substantially blocked or cribbed before men are permitted to work underneath or between such machinery, equipment or part thereof.
- 11.10 Power shall be disconnected when repairs are made to any electric machine.
- 11.11 While inflating tyres of transport vehicles suitable protective cages shall be used. Tyres shall never be inflated by standing either in front or on the top of the same.
- 11.12 Only such fitters or mechanics, who possesses driving license under Motor Vehicles Act shall be authorised by the manager to test-run the HEMM.
- 11.13 The Brakes of all trucks-dumpers and other transport vehicles shall be tested at least once in every fortnight by a competent person duly authorised by the Manager of the mine in a manner detailed below:
- (i) Service Brake Test: The Service Brake shall be tested with the vehicle in fully loaded condition on a specified gradient and speed. It shall stop within a specified distance stipulated by the manufacturer of the vehicle when the Service brake is applied.
 - (ii) Parking Brake Test: The Parking Brake shall be capable of holding the truck/dumper/ transport vehicles when fully loaded and placed on maximum gradient off the roadway, which is permitted, for a period of at least ten minutes.
 - (iii) a record of all such tests shall be maintained in a bound paged book kept for the purpose and shall be signed by the person carrying out the test and countersigned by the Engineer and Manager of the mine.
- 11.14 Daily examination of machinery and vehicle:
- (i) At the commencement of every shift, the engineer, mechanical Foreman or other authorised competent persons shall personally inspect and test every machine and vehicle paying special attention to the following details:
 - (ii) That the brakes and the horn or other warning devices are in working order.
 - (iii) if the vehicle or machine is required to work after day light hours that the lights are working order. He shall not permit the vehicle or machine to be taken out for work until he has driven the vehicle unless he is satisfied that it is mechanically sound and in efficient working order.

- (iv) He shall also maintain a record of every inspection in a bound paged book kept for the purpose. Every entry in the book shall be signed and dated by the person making the inspection.

12.0 Operation of Machinery:

12.1

- (i) No person other than the operator or his helper, if any, or the Manager or any person so authorised in writing by the Manager shall ride on a shovel or excavator.
- (ii) No person shall be permitted to ride in the bucket of a shovel or excavator.
- (iii) No shovel or excavator shall be operated in a position where any part of the machine, suspended loads or lines are brought closer than 3m to exposed high voltage lines, unless the current has been cut off and the line de-energised. A notice of this requirement shall be posted at the operator's control panel.
- (iv) Electrical cables, if any, shall be laid in such a manner that they are not endangered either by falling rocks or by mobile equipment.

12.2 Bucket of shovel or excavator or loader shall be pulled out of the bank as soon as it is full.

12.3 When not in operation the bucket shall be kept resting on stable ground and shall not be left hanging.

12.4 When being operated in soft or unstable ground every shovel or excavator shall be supported by heavy planks or poles so as to distribute the load of the machine over larger area and to prevent any danger of the shovel (or drag-line) over-turning. When not in use, the shovel or excavator shall be moved to and stood on stable ground.

12.5 If more than one stripping machine is in use in any area, either on the same bench or on different benches the machines shall be so spaced that there is no danger of accident from flying or falling objects etc. from one machine to the other.

13.0 Duties of Machinery Operators:

13.1

- (i) Every shovel (and drag-line) shall be under the charge of a competent person authorised in writing by the Manager, herein called the 'operator'.
- (ii) At the commencement of every shift, the operator shall also personally inspect and test the machine, paying special attention to the following details:
- (iii) That brakes and every warning device are in working order; and
- (iv) If the machine is required to work after daylight hours, that lights are in working order.

He shall not take out the machine for work nor shall he work the machine unless he is satisfied that it is mechanically sound and in efficient working order.

13.2

- (i) The operator shall not operate the machine when persons are in such proximity as to be endangered.
- (ii) He shall not swing the bucket of a shovel over passing haulage units. While trucks/dumpers are being loaded he shall swing over the body of the truck/dumper and not over the cab, unless the cab is protected by a substantial strong cover.

13.3 The operator shall not allow any unauthorised person to ride on the machine.

14.1 The Manager of the mine shall frame a Standard Operating Guidelines / Code of Practice for Operation of trucks-dumpers and other vehicles on the following aspects and ensure its compliance:

- (i) Notice specifying maximum load and speed of vehicle,
- (ii) Posting of warning notices for attention of vehicle operators at strategic places, viz. haul road, curves, turning points, level crossings etc.
- (iii) Authorisation to persons to ride on vehicles,
- (iv) Prevention of unauthorised driving by introduction of a system whereby the ignition key and/or cabin key always remains with the driver/operator or specifically designated competent persons,

14.2 No person shall be permitted to ride on the running board of a truck or dumper.

14.3

- (i) As far as possible loaded trucks or dumper shall not be reversed on gradient.
- (ii) Sufficient stop blocks shall be provided at every tipping point and these shall be used on every occasion when material is dumped from the truck, dumper or other such vehicle.
- (iii) Standard traffic rules shall be framed and followed during movement of all trucks and dumpers. They shall be prominently displayed at the relevant places in the opencast workings and truck/dumper roads.

14.4 When not in use every truck or dumper or other transport vehicle shall be moved to and parked at proper parking places.

14.5 No person shall be permitted to work on the chassis of a truck or dumper with the body in a raised position until after the truck or dumper body has been securely blocked in position. The mechanical hoist mechanism alone shall not be depended upon to hold the body of the truck or dumper in raised position.

14.6 No unauthorised person shall be permitted to enter or remain in any dumping yard or turning points.

14.7 While vehicle is being loaded/unloaded on a gradient, the same shall be secured on a stationary position by parking brake and other stop blocks, suitably designed for the purpose shall be placed below the tyres.

14.8 Tractor-trailer combination shall normally not be allowed on haulroads. (Where inevitable, only four wheeler trailers with separate brakes of their own shall be used. The operators shall also be suitably trained on right selection of gears while negotiating steep gradient. Dumpers and trucks shall be allowed to work at same area.

14.9 No trucks-dumpers and other transport vehicles other than that of mine management shall be allowed to enter mine premises without a valid pass issued by the manager. No pass shall be issued unless the truck/dumpers or other transport vehicle is checked by the engineer of the mine and road worthiness is ensured and declared fit by him and the driver holds a valid driving license under Motor Vehicles Act.

In order to check entry of unauthorised vehicles in mine premises properly manned check gate(s) shall be established at entrance(s), where record of examinations mentioned above for its road worthiness and gate passes shall be checked. All the entries and exits shall be logged in a register maintained for this purpose alongwith date and time.

15.0 **Duties of Truck/Dumper Operators:**

15.1 Before commencing work, the driver shall generally inspect and test the vehicle for its roadworthiness paying special attention to the tyre air-pressure, brakes, horn and lights. If he finds any defect, which is likely to make the driving unsafe, he shall report the matter to the competent person and shall not operate the vehicle till the defects are remedied.

- (i) He shall not drive too fast, shall avoid distractions and shall drive defensively. He shall not attempt to overtake another vehicle unless he can see clearly far enough ahead to be sure that he can pass it safely. He shall also sound the audible warning signal before overtaking.
 - (ii) When approaching a stripping equipment, the driver of the truck or dumper shall sound the audible warning signal and shall not attempt to pass the stripping equipment until he has received a proper audible signal in reply.
 - (iii) Before crossing a road or railway line he shall reduce his speed, look in both directions along the road or line and shall proceed across the road or line only if it is safe to do so.
 - (iv) The driver shall sound the audible warning signal while approaching 'blind' corners or any other points from where persons may walk in front unexpectedly.
 - (v) The driver shall not operate the truck or dumper in reverse unless he has a clear view of the area behind the vehicle and/or he has the assistance of a 'spotter or pitman' duly authorised in writing for the purpose by the Manager. He shall also give an audible warning signal before reversing a truck or dumper.
 - (vi) The driver shall be sure of clearance before driving through tunnels, archways, plants, structures etc.
- 15.3 The driver shall see that the vehicle is not overloaded and that the material is not loaded a truck or dumper so as to project horizontally beyond the sides of its body and that any material projecting beyond the front or rear is indicated by a red flag during day and by red light after day light hours.
- 15.4 The driver shall not allow any unauthorised persons to ride on the vehicle. He shall also not allow more than authorised number of persons to ride on the vehicle.

16.0 Protective Equipment:

Every person working in the opencast working shall be provided with and shall use protective footwear and hard hat of a type approved by the Chief Inspector of Mines and such other protective equipment as may be prescribed by the Regional Inspector or the Chief Inspector, in accordance with the provisions of Regulations 191B of the Coal Mines Regulations 1957/ Regulations 182B of the Metalliferous Mines Regulations 1961.

17.0 Precautions against Fire in the Machines:

- 17.1 Portable fire extinguishers shall be provided in the operator's cabin of every machine and suitably placed in such a way that these are within easy reach of the operators.
- 17.2 To avoid serious hazard to life and property due to fire, Automatic Fire Protection Systems shall be provided and maintained in working order for Draglines, Shovels, Drills, Dumpers etc. It is also necessary that the recommended procedure for testing of such protection system as given by the schedule of the manufacturer shall be adopted. Optical, Thermal or any other suitable types of sensing devices shall be suitably located to sense fire and actuate the suppressant to come out through the nozzles already fixed to deal with the fire. An over riding manual system along with fire alarm shall also be additionally provided for buffer effectiveness of the system. (*may be incorporated depending on cases*)

18.0 Precautions against Dust:

- 18.1 Adequate arrangements, to allay dry dust by wetting (by water) / treating (with chemicals) shall be made if, during operation of drilling, loading, unloading, crushing, dressing etc., dust is likely to be produced in such quantity as may be injurious to health of persons, as also, on roads and benches where trucks and dumpers operate. The directives contained in D.G. M. S. (Tech) Circular No.16 of 1975 shall be complied with.
- 18.2 All drill machines shall be provided with wet drilling arrangement. Drilling of Shot holes or any other hole shall not commence unless a jet of water having adequate pressure is directed on the drill bit.

19.0 General Lighting:

Where natural lighting is insufficient, adequate general lighting as per the standards laid down in Notification No. G. S. R. 804 dated 18.6.75, published in the Gazette of India dated 28.6.75, Part-III Section 3 (1) (reproduced in D.G. (Legis) Circular No.1 of 1976), shall be provided during working hours, in the opencast workings and along roads, etc. For proper inspection of the high sides and benches of the opencast working at night, suitable searchlights shall be provided. The individual workers shall also be provided with electric cap lamps to be of use when they have to go in poorly illuminated places.

20.0 Precautions against Noise and Vibration in the working environment:

Suitable steps should be taken by all appropriate means to reduce the exposure of workers to any excessive noise and vibration. In this connection, the requirements of D.G.(Tech) Circular No.18 of 1975 should be complied with.

(ए वहीद)
खान सुरक्षा निदेशक,
हैदराबाद क्षेत्र-1

