

## RECOMMENDATIONS OF SEVENTH CONFERENCE ON SAFETY IN MINES

*Held in New Delhi on 19th & 20th Dec., 1988*

### **1.0 Review of status of implementation of recommendations of Fifth & Sixth Conferences on Safety in Mines.**

1.1 Manager of every underground mine should formulate 'Support Plan' for support of roof, sides, back and hangwall. Opinion of Central Mine Planning and Design Institute Ltd. (Subsidiary of CIL)/CMRS should be sought where geo-mining conditions are difficult. The 'Support Plan' should be in respect of the following:

- (a) Workings within 9 metres of the working faces.
- (b) Along tramming levels and especially at loading points.
- (c) Along haulage roadways and especially at junctions.
- (d) At any other place (s) in the mine identified for support under Regulation 108 of the Coal Mines Regulations, 1957 and Regulation 112 of the Metalliferous Mines Regulations, 1961.

Local geological conditions, physico-mechanical properties of strata, method of work including mechanisation and past experience etc. may be taken into account while formulating such plan. For non-coal mines, nature of strata, which in many cases is massive, may be taken into consideration.

The plan should include:

- (a) Type of supports e.g. safari supports, roof bolts, friction props, rigid props, or hydraulic props etc.
- (b) Duties and responsibilities of Timbermen, Dressers, Sirdars/Mates, Overmen/Foremen, Assistant Managers, Managers and Agents towards supply of material, erection and withdrawal of supports, inspection thereof and ensuring effectiveness of supports.

The 'Support Plan' should be submitted to DGMS for approval.

In case there is delay in formulation of such plan due to involvement of various agencies, interim plan should be prepared and submitted immediately. Pending approval, the plan should be implemented.

No person should be employed at any place which is not supported in accordance with the approved 'Support Plan'

1.2 Intensive practical training and retraining should be given to persons engaged in support work such as timbermen and dressers etc. by experienced and qualified persons. This should be supplemented by organising workshops at mine level at quarterly intervals preferably by NCSM.

1.13 It is accepted that preparation of fresh plans after connecting mines to National Grid involves work which is not only huge in quantum but complex to carry out such surveys independently. A team of qualified surveyors should be appointed at area level (as existing in CIL) which could undertake such surveys in association with mine surveyors. Such a team should also conduct and carry out regular check surveys in order to check the accuracy of mine plans at various mines.

1.14 Mine managements should avail themselves of various specialist facilities provided at different institutions for upgradation of skill of mine surveyors. Suitable evaluation system/tests should be conducted at the end of both short term (3-6 months and long term courses (6-12 months) provided at such institutions for the grant of suitable certificates to the participants.

1.15 Every worker specially piece-rated loader should undergo appropriate training whenever there is change in his nature of job.

1.16 Mining companies should clearly identify the need for training of supervisors working in mines. Mine managements should preferably make use of the services and expertise developed in this regard by NCSM to supplement their own efforts in order to achieve the desired results in next few years.

1.17 In Oil mines, tri-partite meetings consisting of management, workers representatives and DGMS should be arranged at intervals not exceeding 6 months during which safety performance and progress of implementation of the Company's policy on Safety and Health and of the recommendations of this Conference should be discussed. These meetings should be presided over by representatives of management, labour and DGMS by rotation.

1.18 Tele-communication system should be introduced in a phased manner in below ground mines in the next five years, giving priority according to distance, mechanisation, degree of gassiness, and problems of fire.

1.19 In metalliferous mining companies, the Internal Safety Organisation (ISO) should be made independent of the production line up at all levels within 6 months. .

1.20 The Chief of Internal Safety Organisation should be a senior officer next in rank only to the Director (Tech) if any or M.D./The Chief Executive.

1.21 In mines, supply of drinking water at working places should be ensured.

1.22 In mines where long or arduous travel is involved, arrangements for transport of men should be made.

1.3 In coal, no blasting-off-the-solid should be done except with proper type, of delay action detonators and proper explosives.

1.4 Managements of oil mines should examine and review all installations vis-à-vis the safe distance to be maintained and work out a time-bound action plan for rectification within six months along with safety precautions to be taken in the interim period to minimise danger.

1.5 All fixed Internal Combustion Engines should be fitted with flame arrestors and air intake shut-off valve with remote control. No new rig will be purchased or installed without these safety devices. Oil and Natural Gas Commission and Oil India Ltd. will prepare and submit a programme for phasing out such old rigs and will, within six months, also seek specific exemption for continuance of each such rig.

1.6 A study should be undertaken to determine the causes of fires that occurred in oil mines in the last five years. A report on the same indicating the remedial measures taken should be submitted half yearly to DGMS.

1.7 Necessary facilities for monitoring the environmental parameters should be provided at mines. Facilities of continuous type monitoring should be installed within one year in all degree III gassy coal mines and in other mines having active underground fire or mines having serious problems of heat as identified by mutual discussions between mine management and the Directorate-General of Mines Safety.

1.8 Initial medical examination of all workers employed in underground mines should be completed by June, 1989. Thereafter, periodical medical examination of such workers should be done atleast once in 5 years.

1.9 Initial medical examination of all workers employed on surface and engaged in drilling, loading and at crushing and screening plants should be completed by June, 1989. Thereafter, the periodical medical examination of all such workers should be done atleast once in 5 years.

1.10 Categories of persons employed in oil mines requiring periodical medical examination should be identified by consultations between the management of oil mines and DGMS.

1.11 To meet the requirement of qualified surveyors in mines, mining companies should expeditiously induct apprentices in sufficient numbers.

1.12 Mining companies should evolve a suitable cadre structure for mine surveyors in order to attract and retain competent and qualified persons in survey discipline.

## **2.0 Safety in Opencast Mining**

2.1(a) Each company should frame suitable 'code of traffic rules' for regulating the movement of Heavy Earth Moving Machinery (commensurate with the capacity/size, type of machines used in the mechanised opencast mines) for enforcement in each mine. Such Code of Traffic Rules should be approved by Tripartite Committee.

(b) The Code of Traffic Rules should be deliberated, framed and approved within a period of 6 months. The Code of Traffic Rules should be enforced in each company within a period of 12 months.

2.2 (a) Each company operating mechanised mines should frame suitable 'Code of Practice' for the prevention of injuries to persons engaged in tipping on stock piles, dumping of overburden at dump yards, at loading points etc. Such 'Code of Practice' should be approved by Tripartite Committee.

(b) The 'Code of Practice' should be deliberated, framed and approved within a period of 6 months. The code should be enforced in each mine within a period of 12 months.

2.3 The design and maintenance of haul roads in mechanised opencast mines should be laid down by each company in respect of each mechanised opencast mine. If required, the company may consult/interact with DGMS in this regard.

2.4 (a) Each company should ensure that for every mine a scheme is drawn- and implemented for proper maintenance, repair, overhaul and erection in respect of heavy earth moving machinery.

This scheme should cover places such as repair sheds and workshops. Necessary help, if required, should be obtained from the manufacturers of Heavy Earth Moving Machinery (HEMM).

(b) Adequate attention should be given towards proper layout of repair sheds and workshops so as to ensure due protection to work persons deployed at those places from the movement of heavy earth moving machinery therein.

2.5 The operator's cabin of heavy earth moving machinery should 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 seatbelt for the safety of the operator should also be provided.

2.6 (a) Operator/driver of each HEMM should be selected from amongst persons possessing requisite qualifications. The selection process should comprise a test to check driving/operating skill, aptitude, health and oral examination of the candidate by a competent selection committee.

(b) All operators of HEMM should undergo regular checks to test their driving/operating skill, knowledge and health once in every five years.

(c) Suitable training institute/training centre should be opened in each company to provide comprehensive training so that only duly qualified and trained operators are always available commensurate with the present and future needs of the mechanised mines.

2.7 A separate format for writing statutory reports by shotfired/blasters, mining sirdars/mates and overmen/foremen employed at opencast mines should be prepared and circulated early.

2.8 A format for writing report of inspection of dragline wire ropes should be introduced early.

2.9 A code of practice shall be drawn up for dealing with fires at different locations in opencast mines, including HEMM. Arrangements for fighting fire should be provided on all heavy earth moving machineries. Such arrangements should, if possible, operate automatically on appearance of fire.

2.10 Efficient lighting arrangements not below the standards prescribed in the statute shall be provided and maintained at different locations in opencast mines.

2.11 Structural stability of HEMM should be examined periodically by an independent team of experts. Such an examination may invariably be made after every major repair to HEMM.

#### **4.0 Occupational Health Services in Mining Industry**

4.1 There is a need for creation of a Department of Occupational Health Services in each mining company working mechanised mines.

4.2 Occupational Health Services shall have sufficient technical personnel with specialised training and experience in such field as occupational medicine, industrial hygiene, ergonomics, occupational health and nursing. They should, as far as possible, keep themselves up-to-date with progress in the scientific and technical knowledge necessary to perform their duties. The Occupational Health Service should, in addition, have necessary administrative personnel for their operation. Equipment and appliances of proper type should be provided for carrying out the assigned functions.

4.3 The Occupational Health Services shall carry out the following functions:

(i) Identification and assessment of the risk from health hazards at work place;

(ii) Surveillance of the factors in working environment and work practices which may affect workers' health;

(iii) Surveillance of workers' health in relation to work;

(iv) Education of workers on sanitation, cleanliness, hygiene and health care;

(v) Collaborating in providing information, training and education in the fields of occupational health, industrial hygiene and ergonomics;

- (vi) Organisation of first-aid in mines including training and retraining of first-aiders;
- (vii) Preparing a quarterly status report on occupational health and industrial hygiene in the mines of the concerned company. The quarterly report should include information on medical examinations, notifiable diseases, status of first-aid, results of survey for air-borne dust, noise, temperature, quantity of air and sanitation in working places;
- (viii) The report of medical examination of each worker should be maintained regularly and the record of periodical medical examinations should be maintained systematically. Application of computer for storing and retrieval of data would be desirable;
- (ix) Advising the management on occupational health, industrial hygiene, first-aid, ergonomics.

4.4 The Occupational Health Services shall be headed by a Senior Officer.

4.5 Occupational Health Physician should be a member of the Safety Committee where he could contribute to the health education of workers.

4.6 (i) Management of every mechanised mine should, in consultation with experts of the Occupational Health Services, prepare a scheme for -:

- (a) Identification of operations and activities where factors which are hazardous to health of persons at work exist or may arise during the course of work;
- (b) Monitoring the levels or values of different factors which may affect health of persons;
- (c) Specifying the various control measures necessary for keeping the levels/ values within the permissible limits;
- (d) Health surveillance;
- (e) Health education;
- (f) first-aid training.

(ii) The above scheme should clearly specify the types of instruments to be used for monitoring, frequency of observations/examinations, type of training, education, recording of data and responsibility of various persons for implementation of the scheme.

4.7 Management of every mine should ensure that:

- (i) All mine workers are given basic training in first aid;
- (ii) Holders of first-aid certificates are given refresher training once in two years;
- (iii) rescue trained persons acquire highest standards of proficiency in first-aid;
- (iv) Ambulance vans are fully equipped with life saving drugs, medicines and appliances needed in emergency.

4.8 In respect of small mechanised mines which are mostly operating in non- coal sector, it may not be feasible for a small organisation to create a special department on occupational health services. For such small mines, it is suggested that an Association of small mine operators create common facilities and infrastructure for occupational health services. Creation of such facility is specially needed for asbestos, manganese and mica mines. Simultaneously with creation of facilities for occupational health services it is also necessary to improve quality of life of employees working in mining industry by provision of well planned housing colonies with all modern facilities such as good drinking water, good sanitation, drainage and recreational facility.

Recommendations on Traffic Rules and Procedures-See **Cir.Tech. 1/1989**

Recommendations on code of practice for tipping on stockpiles and dumping of OB – See **Cir.Tech. 1/1989**