RECOMMENDATIONS OF NINTH CONFERENCE ON SAFETY IN MINES

Held on 2nd-3rd February, 2000 at New Delhi

1.0 Review of Status of implementation of Recommendations of the 8th conference on safety in mines:

The following recommendations from 8th Conference may be carried over:

1.1 Necessary facilities for monitoring the environmental parameters in respect of methane and carbon monoxide should be provided at mines. Facilities of continuous type monitoring should be installed within two years in all degree III gassy coal mines and in other mines having active underground fire. Indigenous manufacturers should be encouraged to manufacture necessary equipment.

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

l.3 In respect of small-mechanised mines, which are 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 creates 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.

1.4.1 Suitable type of steel/metal supports should be introduced in all the development districts in coal mines within two years.

1.4.2 Wherever practicable, roof bolting as a method of support in coal mines should be used. Its performance should be monitored regularly. A few conventional timber props may be used as indicator props.

1.4.3 Coal mining companies should- take initiative to select/promote development of suitable type of drills and other accessories for use in various types of roof strata. A task force may be created for the purpose which may oversee the introduction of steel supports.

1.4.4 Development of a portable instrument for detecting the hidden slips in roof of coal mines should be taken up on priority by R&D organisations.

1.5 All front-line supervisory officials like Sirdars/Mates, Overmen/Foremen, surveyors, Electrical/Mechanical supervisors/Chargemen/Foremen as well as persons supervising other surface operations should be imparted structured training in safety management, for at least two weeks, once in every five years, covering about 20% strength every year.

1.6 The recommendations of DGMS Cir. Tech. 18 of 1975 shall be implemented forthwith. (Protection against noise and vibrations)

1.7 Audiometry should be introduced, as a part of mandatory medical examination, for-persons seeking employment in mines and for persons engaged in operations/areas where noise level exceeds 90 dB (A)

1.8.1 The portion of surface haul road in mine premises where there is heavy traffic of men and machines should have separate lane properly fenced off from the haul road for pedestrians and two wheelers.

1.8.2 Trucks and other heavy vehicles, not belonging to management should not be allowed in the mine premises without a valid pass issued by the competent authority of the mine.

Before the pass is issued the mine engineer should check the roadworthiness of such vehicles.

In order to check entry of unauthorised vehicles in mine premises, each mine should establish properly manned check gate(s) at the entrance(s) where record of entry and exit of each such vehicle should be maintained.

At the check gate the licence of the drivers should also be checked for eliminating the possibility of unlicensed persons driving the vehicles.

1.9 Persons engaged in surface operations and, in particular, the contractors' workers, who incidentally are often inexperienced and least informed about job-safety matters, need closer and more competent supervision. To minimise accidents due to surface operations it would be ensured that:
-All persons engaged at any work within the mine premises through the contractors have received relevant training and other job-related briefings and that the drivers of vehicles belonging to contractors entering the mine premises have additionally been explained the salient provisions of 'traffic rules'.
-Each mining company should draw up appropriate training schedules and modalities in this regard and implement the same.
-In case of smaller mines, such arrangement may be made by association of mine operators.

2.0 Preventing Mine disasters from inundation
2.1 Each mine shall be critically examined for its proneness to inundation and assessment regarding danger of inundation and precautions to be taken should be reviewed and updated yearly preferably before the onset of the monsoon. The recommendations may be deliberated in the (Pit) Safety Committee of the mine and information disseminated as widely as possible.
2.2 Suitable infrastructure at area level may be provided for drilling advance boreholes to detect presence of waterlogged workings in advance.
2.3 Embankments provided against river and jore to guard against inundation should be designed properly keeping in view the engineering parameters. The details of such construction should be properly shown in the underground plan and water danger plan.
2.4 Surface excavation or disturbance in or near major sources of water, which are connected or are likely to be connected to belowground workings should be filled up completely.
2.5 Detailed precautions against inundation may be laid down while working beneath or in the vicinity of river and major water bodies. This may include framing and implementing standing orders for safe withdrawal of persons, including system of information both manual and automatic, effective communication system and system of safe and timely withdrawal of persons to safety.
2.6 Mechanism may be developed for warning mines about impending heavy rains similar to warning of impending cyclone issued in coastal areas for taking necessary action. Also co-ordination with concerned agencies/departments about opening of dams in the rivers on the upstream side should be examined.
2.7 Winding system serving as sole means of ingress and egress may be made constantly available even in adverse weather conditions, failure of steam or electricity or any other reasons.
2.8 Effective communication may be established within the mine and between mines for safe withdrawal of persons. Necessary standing orders in this regard need to be framed and enforced.
2.9 Recommendations of 6th Conference on Safety in Mines to evolve suitable cadre structure for mine surveyors and upgradation of their skill by availing facilities at various institutions, appointment of qualified surveyors and providing infrastructure including computerised facility at area level to oversee survey work of the mine etc. may be implemented.
2.10 R&D efforts should be continued to develop a system for construction of water-tight chamber as last refuge belowground in case of inundation.

3.0 Preventing Mine Disasters from Fire, and Effective Emergency Response
3.1 Considering the risk of fire, all coal mine companies shall rank its coalmines on a uniform scale according to its risk from fire on scientific basis. Guidelines may be framed by DGMS and circulated to all mining Companies.
3.2 Recognizing the urgent need for making the emergency plan responsive, speedy and effective, each mine shall review the existing emergency plan, at a higher level keeping in view the risk from fire.
3.3 A tripartite committee may be formed to study the feasibility of establishing rescue rooms in coal mines having risk of fire and employing more than 350 persons ordinarily employed in a shift belowground.

3.4 A tripartite committee may be formed to study the feasibility of storing oxygen type self rescuers at strategic places belowground in coal mines with risk of fire in such scale so as to cater to the needs of persons who can be affected in an emergency.
3.5 Each mining company shall formulate and implement structured training programme for development of awareness and increasing effectiveness of emergency response in case of fire amongst work persons, officials and management.
3.6 Through sustained and meaningful R&D activities, mining companies and research institutions shall help in creating a better understanding of the complex geo-mining situations leading to the occurrence of fire, which in turn will help in formulating guidelines to combat the problem of fire in effective manner. Early detection of heating, effect of reversal of fan and control of fire, other associated aspects may be studied.

4.0 Risk Management as a Tool or Development of Appropriate Health and Safety Management Systems

4.1 Every mining company should identify one or more mines and should undertake a formal risk assessment process aimed at reducing the likelihood and impact of mishaps of all kinds in mines. Subsequently risk assessment process should be extended to other mines.
4.2 Risk assessment process should aim at effective management of risks, by identifying,
(i) Which risks are most in need of reduction, and the options for achieving that risk reduction,
(ii) Which risks need careful on-going management, and the nature of the on-going attention.
4.3 The risk assessment exercise should follow an appropriate process.
4.4 Risk management plan shall be prepared on the basis of risk assessment and implemented in the identified mines.

5.0 Quality Control for Improving Safety

5.1 Each mining company and the manufacturer/supplier shall satisfy themselves that the product has valid approval where applicable and conform to relevant standards where available at the time of supply
5.2 Each large mining company may set up quality control cell or strengthen where the same exists, identify critical items which require testing for qualify assurance at the time of procurement and during use and arrange testing of the same. Testing facilities may be set up wherever feasible.
5.3 Any defect or failure of approved items or those having BIS certification may be promptly brought to the notice of the appropriate authority for further action.

6.0 Communication system between DGMS offices and Mine Management at Site

6.1 Recognizing existence of a large variety of communication systems in mines, a comprehensive review of the existing communication systems at all mines in all mining companies should be undertaken and a consolidated status report prepared for working out a realistic and effective system of communication.
6.2 In organized mining sector, an effective internal and external system of communication besides P&T means shall be established both ways between the mines and, Rescue Rooms/stations, hospitals and DGMS offices.
6.3 Each mining company in the organized sector shall formulate and implement a comprehensive communication protocol clearly assigning duties and responsibilities of persons at various levels.
6.4 In un-organized mining sector, effective communication system shall be established in the following manner:
(i) In large mines effective wireless communication within the mine including attendance rooms and manager's office and residence, and
(ii) P&T telephone at manager's office and residence.
6.5 Steps shall be taken to strengthen communication system within DGMS offices and amongst DGMS offices and mine sites besides other concerned agencies.

7.0 Safety in Oil Mines -Blowout and fire hazards

7.1 General-Each oil company shall formulate a system to monitor all incidents of fire and blowout, whether or not involving loss of life, injuries and loss of property, investigate the causes and take necessary remedial \ measures.

7.2 Precautions against blowout:

7.2.1 Each oil company shall frame an action plan to provide following safety devices in all the drilling rigs:

(a) Pit level indicator registering increase or reduction in the drilling mud volume with an audio-visual warning device near the driller's stand,

(b) A gas detector or explosimeter at the primary shale shaker with audio-visual warning device near the driller's stand,

(c) A device to accurately measure the mud required to keep well filled at all the time and

(d) A device to ensure filling of the well with mud when string is being pulled out.

7.2.2 To ascertain that BOPs function properly up-to their rated capacity, it is essential that all BOPs choke manifolds are pressure tested as prescribed. Adequate facilities/hydraulic test benches shall be provided in each company so that BOPs and their accessories can be pressure tested to ensure their effectiveness.

7.2.3 At regular intervals, blowout mock rehearsals shall be carried out. Drilling crew including the chemists and geologists at the well site shall be trained so that they recognize the warning signs of a kick and know what action must be taken to detect and control a kick.

7.2.4 Fitness of the drilling rigs, work-over rigs and well head equipment should be checked initially and periodically. Quality control procedures for tubings/casings shall be appraised and strengthened.

7.2.5 At the time of drilling of the wells, geo-technical details shall be thoroughly disseminated with the concerned drilling crew to forewarn them about the presence of gas/oil bearing horizons etc.

7.3 Precautions against Fire

7.3.1 Each Oil company shall examine the condition of pipelines carrying hydrocarbon with special emphasis on:

-Trunk lines

-High pressure gas/oil pipelines

.-Pipelines passing through highly populated area, rivers etc.

-Old pipe lines.

Action plan shall be prepared to take corrective action in a phased manner.

7.3.2 Plans of pipe lines of flowing wells connected with group gathering stations shall be up-dated showing villages, surface features, location of valves etc. and copy of such plans shall be displayed at every group gathering station.

7.3.3 Work permit system for hot work, cold work and electrical work should be formulated and implemented under the competent supervision at all the oil installations.

8.0 Occupational Health Surveillance in mining industry

8.1 Occupational Health Services as recommended by 7th Conference wherever not yet established shall be established within a period of one year.

8.2 Each- mining company operating mechanised mines shall computerise all records of medical and environmental surveillance.

8.3 Every PME Centre shall be provided with the facility for chest radiographs, lung function tests, arrangement for classification of chest radiographs and also wherever required facilities for audiometry.

8.4 All chest radiographs of Initial and Periodical Medical Examinations shall be classified for detection, diagnosis and documentation of pneumoconiosis in accordance with ILO classification for pneumoconiosis.

8.5 The PME Medical Officer in every PME centre shall be trained in occupational health and use of ILO classification for pneumoconiosis.

8.6 Each mining company operating mechanised mines shall set up an Occupational Diseases Board consisting of one Occupational Health Physician, one radiologist and one general physician.
8.7 Occupational Diseases Board shall formulate guidelines for referral re-evaluation, classification of cases of pneumoconiosis and necessary remedial actions at workplace as well as rehabilitation of affected persons(s)

9.0 Increasing effectiveness of workers' participation in safety management

9.1 All mechanised mines and mines using heavy earth moving machinery for exploitation of minerals, where 100 (one hundred) or more workers are employed should appoint Workmen's Inspectors.
9.2 In large mines sectional/departmental safety committees under the main safety committee may be constituted for specific areas of operation.
9.3 The tenure of the safety committee shall normally be for a period of two years.
9.4 Arrangements shall be made to train the trainers of the Safety Committee members.
9.5 One of the agenda items in the periodic meetings of the Boards of mining companies shall be ‘safety performance appraisal’ of the company.

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