



सत्यमेव जयते



भारत सरकार
Government of India
श्रम एवं रोजगार मंत्रालय
Ministry of Labour & Employment
खान सुरक्षा महानिदेशालय
Directorate General of Mines Safety



No. DGMS (Tech) Circular (MAMID)/_08

Dhanbad, dated 29/04/2020

To,

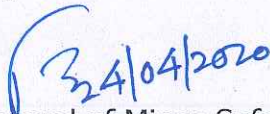
The Owner, Agent and Manager of all Mines

Subject: Recommendations of 12th National Conference on Safety in Mines held on 28th & 29th January, 2020 at New Delhi.

You are aware that the 12th National Conference on Safety in Mines was held on 28th & 29th January, 2020 at New Delhi. Besides reviewing the status of implementation of the recommendations of 11th National Conference on Safety in Mines, the Conference deliberated upon and made valuable recommendations on the following subjects:

1. Electrical safety – Recent trends, Strategy for improvement.
2. Role of information technology in mining sector.
3. Prevalence of pneumoconiosis/silicosis amongst workers, present status of dust control measures and strategy for improvement.
4. Strategies for disaster prevention in coal mines.
5. Occupational safety and health issues of contractual workers- Strategy to improve safety and health status.

The recommendations of the Conference as enclosed, as annexure are hereby being brought to your attention for information and necessary action.


Director General of Mines Safety (Officiating) and
Chief Inspector of Mines,
DGMS, Dhanbad.

Recommendations of 12th National Conference on Safety in Mines held on 28th & 29th January, 2020, at New Delhi.

1.0 REVIEW OF STATUS OF IMPLEMENTATION OF RECOMMENDATIONS OF 11TH NATIONAL CONFERENCE OF SAFETY IN MINES HELD ON 4TH AND 5TH JULY 2013.

- 1.1.1 Indigenous manufacturers should be encouraged to manufacture necessary safety related equipment's.
- 1.1.2 In specified underground mines where long or arduous travel is involved, arrangement for transport of men should be made with a target of 20 % every year.
- 1.1.3 In respect of small-mechanized mines, which are operating in NON-COAL sector, it may not be feasible for a small organization to create a special department on Occupational Health Services. For such small mines, it is suggested that an Association of small mines operators creates common facilities and infrastructure for occupational health services. Creation of such facilities is specially needed for asbestos, manganese and mica mines.
- 1.1.4 Development of a portable instrument for detecting hidden slips in roof of COAL mines should be taken up on priority by R&D organizations. The instrument should be developed by S&T project which should be guided by a committee consisting of an officer from DGMS and others from COAL Industry and Research Organizations.
- 1.1.5 In case of smaller mines, such arrangement may be made by association of mine operators.
- 1.1.6 Considering the risk of fire, all COAL mine companies shall rank its COAL mines 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.
- 1.2 Safety issues in mines of un-organized sector
 - 1.2.1 In case of stone quarries on hillocks, whole of the hillock should be given out as a single lease so that necessary development could be done from top downwards after making approach road to reach to top of the hillock before starting extraction of stone/removal of overburden. A condition to this effect may be incorporated before granting such leases.
 - 1.2.2 In the lease document, reference should be made to the Mines Act and the Rules and Regulations made there under for compliance. The DGMS may prepare, in consultation with Ministry of Mines a model document for grant of leases by the State Government so that the conditions of leases are such that there is a uniformity and compliance with central laws.
 - 1.2.3 A copy of the lease document should be sent to the DGMS and the lessees explicitly be asked to send notice of opening of the mine to DGMS in accordance with the Provisions of the Mines Act.
 - 1.2.4 The Conference has noted that there have been instances in some States where leases have been granted in close proximity of inhabited area and within 45 m. of Railway acquired land and land acquired for National and State highways, public works without consulting the appropriate statutory authority. The conference recommends that the States may grant mining leases in conformity of Central Laws.
 - 1.2.5 DGMS should organize Orientation Programs for officers of State Mines and Geology Departments to inform them about safety laws.

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- 1.3 Occupational Health surveillance and Notified Diseases
- 1.3.1 Ergonomical assessment of all latest machines, before their introduction into mining operation as per ISO standards. Ergonomical assessment should include:
- * Assessment of work process.
 - * Assessment of working Aids/tools
 - * Assessment of working posture.
- 1.3.2 For smaller mines where PME facilities are not existing, medical examinations can be done through other competent agencies.
- 1.4 Mechanization with view to phase out manual loading etc.
- 1.4.1 Possibility of deployment of multi-skilled miners in the green roof/hazardous areas shall be explored to reduce the exposure at hazardous areas without affecting employment.
- 1.5 Below ground communication and tracking system
- 1.5.1 Mining companies in collaboration with research institutions/equipment manufacturers shall initiate and fund for, suitable research initiatives for establishment of appropriate communication system for below ground mines including to locate the trapped miners.
- 1.5.2 Mine management in collaboration with equipment manufacturers shall evolve a system of proximity warning device in HEMM and initiate measures for its implementation.
- 1.6 Implementation of ILO convention No. 176 in Mines
- 1.6.1 The committee decided that a separate discussion be held by the Govt. of India in a tripartite forum to deliberate on the implications arising out of ILO Convention No. 176.
- 1.7 Small Scale Mining
- 1.7.1 The concerned authority in State Government may grant prospecting lease/mining lease/ mining right after ascertaining technical feasibility of mineral extraction in pursuance of provisions of the mining law, so that the lessee can make medium to long-term plan for investment in infrastructure and work the mines in a safe and scientific manner. While conducting of mining operations, it should be ensured that the Central Laws, including the Mines Act are complied with.
- 1.7.2 The State Governments may explore the feasibility of demarcation of mining zones to avoid problems of growing habitation encroaching into the mining area, thereby creating unsafe and unhealthy conditions. However, the State Government may take efforts to relocate the habitation already existing near mining zones.
- 1.7.3 The lease granting authority of State Government may assign a unique identification number, which will serve as a common reference for all central and state authorities responsible for administration of central and state laws. The details of lease may be displayed in a board of permanent nature in a prominent place in the lease hold area showing following:
- a. Name of lessee and postal address:
 - b. Lease number:
 - c. Period of lease:
 - d. Unique identification number:

- 1.7.4 The lease granting authority of State Government may insert a clause in the lease document requiring the lessee to submit a notice of
- (i) commencement of any mining operation, and
 - (ii) appointment of a manager, prescribed under the Mines Act, 1952 and Rules and Regulations framed there under.
- 1.7.5 The concerned authorities of State Government may be requested to explore the possibility of introducing a course in Mining at Industrial Training Institutes in consultation with DGMS to augment the requirement of Mining Mates.
- 1.7.6 Orientation Programs may be organized for officers of State Mine and Geology Departments on OSH Laws.
- 1.7.7 Organized mines of public and private sector may consider extending their facilities in Vocational Training, Occupational Health Surveillance and other Safety Awareness Programs for workers engaged in small scale mining sector.
- 1.7.8 As a promotional initiative, social dialogue and deliberations at appropriate level may be initiated to facilitate formation of Cooperative Society/Mine Owners Association to tackle issues of resource and logistics management essential for safe and healthy mining.
- 1.7.9 The Conference appreciates the efforts made by Ministry of Labour and Employment and Directorate General of Mines Safety for encouraging and adopting innovative means to create awareness about OSH issues and improving compliance in small scale mining sector with public private interventions. It is recommended to continue with such initiatives vigorously and in enhanced manner.
- 1.7.10 The concerned authorities may explore possibilities of setting up of Mine Workers Welfare Boards for minerals like sandstone, marble and granite.
- 1.8 Safety, Health and Welfare of Contractual Workers.
- 1.8.1 Central Government should take steps against non-compliance of the Recommendations of the National Safety Conferences.
- 1.9 Surface and Underground Transportation Machinery:
- 1.9.1 MACHINERY FOR SURFACE OR OPENCAST OPERATIONS
- 1.9.1.1 Safety Features in HEMM : GPS-GSM Based Navigation System
The GPS-GSM based vehicle navigation system shall be used in large mines in a phased manner.
- 1.9.1.2 Skill Development and Training: General Skill Development programme should be undertaken for training of operators and all other associated staffs using state of the art technique including simulation and 3D Virtual Reality system.
- 1.9.1.3 Protection against Fatigue: Long or Extended Hours of driving beyond 8 continuous hours with a rest interval of half an hour after four hours of continuous operation, shall not be permitted, for which biometric system of check-in & check-out system of attendance associated with suitable software shall be introduced in the mine.

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1.9.2 TRANSPORTATION MACHINERY IN UNDERGROUND:

1.9.2.1 All steam winders should be replaced with electric winders in phased manner within a period of five years.

OR

Alternate access to the mine in the form of Inclines or Shafts may be considered and implemented within the same period.

1.9.2.2 Safety Features in Winding: Detailed survey of all winding installations which completed 20 years shall be carried out by a committee of experts and its recommendations shall be implemented.

2.0 ELECTRICAL SAFETY – RECENT TRENDS, STRATEGY FOR IMPROVEMENT

2.1 Shutdown procedures with lock out and tag out system with a provision of multiple lock, displaying the person's name, designation and photo shall be implemented. When any switchgear cannot be locked out, the same shall be modified or replaced to make it capable of being locked.

2.2 Specific category wise training shall be imparted to all electrical personnel whenever- a new electrical machinery/apparatus is introduced, change in jurisdiction of job/Profile, change in the working voltage and Change in working place (Below Ground / opencast/surface installation), etc.

2.3 The contractor engaged for any electrical installation, maintenance, repairs, etc., should possess a valid electrical contractor license issued by the state licensing board and engage adequate number of competent Electrical personnel. It shall be included in Terms and conditions of contract agreement / NIT (Notice Inviting Tender) and shall be ensured by the principal employer.

3.0 ROLE OF INFORMATION TECHNOLOGY IN MINING SECTOR

3.1.0 At every working mine, the Owner shall ensure the following in respect of employment of persons.

3.1.1 Details of every Initial/Periodical Medical Examinations conducted and Initial/Refresher Vocational training provided to persons employed in mine(s) are uploaded onto an appropriately designed Digital platform on a non-editable mode and also linked to the individual's 'Aadhaar number' so as to be amenable for quick retrieval and for portability wherever required.

3.1.2 The register of employees in Form-A are maintained in Digital form, along with Digital linkage to details in non-editable form of Initial/Periodical Medical Examinations conducted, Initial/Refresher Vocational training provided and individual's 'Aadhaar number' for every entry made therein.

3.1.3 'Biometric Attendance system' for the purpose of booking attendance of all persons employed in the mine(s) is provided at locations as may be fixed by the Manager in writing to ensure that only those persons with entry in the Digitized Form-A register of employment as mentioned above can book attendance to gain entry into the mine(s). Entries made in the Biometric Attendance system' shall be retained permanently and shall be easily amenable for quick retrieval when required. Wherever possible 'Aadhaar number based Biometric Attendance system' shall be implemented for booking attendance.

- 3.1.4 For on the spot easy identification while working in a mine, every person employed is issued smart Digital tokens containing his/her complete Form-A Register entry.
- 3.2.0 At every mine with deployed machinery including electrical machinery, the Owner shall ensure the following in respect of deployment and operation of machinery in the mine.
- 3.2.1 Every deployed machinery shall be identified by a unique and mine specific 'Machinery Reference Number (MRN)'. All technical details of such machinery shall be made available on a customized Digital platform for easy retrieval when required.
- 3.2.2 Every deployed machinery is accompanied by a Digitally generated pre-deployment fitness certification duly signed by the concerned mine official.
- 3.2.3 Excepting in case of any emergency or other such situations to be recorded in writing by the Manager, no machinery without a valid MRN shall be deployed in the mine.
- 3.2.4 In respect of operation of such machinery, a comprehensive Digitized system shall be developed for
- 3.2.4.1 making available the details of actual deployment to the shift officials within 15 minutes of the commencement of the shift working hours;
- 3.2.4.2 initial examination of such machinery by the engaged operator as per check-lists formulated in accordance with various DGMS guidelines, OEM stipulations, etc., and entering the findings through Digital kiosks/tools;
- 3.2.4.3 dissemination of the report of such initial examination to all concerned officials as may be decided by the Manager for ascertaining safe operating conditions of the machinery;
- 3.2.4.4 regular maintenance at stipulated intervals as per OEM stipulations/other guidelines and entering of records thereof in the Digital history sheet of the machinery and
- 3.2.4.5 making all information Digitally available to all concerned mine officials.
- 3.2.5 A system of Digital tracking of all transportation machinery while in operation within the mine boundary shall be deployed.
- 3.3.0 At every mine, the owner shall arrange to develop and implement a comprehensive digital system in respect of,
- 3.3.1 reporting by the engaged machine operators, technicians, supervisors and statutory officials in non-editable form so as to be amenable for immediate scrutiny by concerned persons at multiple levels in the management hierarchy;
- 3.3.2 recording various statutory and non-statutory monitoring activities pertaining to mine environment including that of sealed-off areas in belowground mines, ground movements, condition of operating machinery, etc., so as to be instantaneously available for multi-level scrutiny, supervision and analysis,

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- 3.3.3 statutory mine plans, sections, records, returns, registers, etc., in such a manner that they are always kept updated and available for scrutiny/examination at multiple levels in non-editable form,
- 3.3.4 all purchase/procurement activities at the mine which could have adverse impact on safety due to any delay, and
- 3.3.5 availability of mines rescue equipments, trained manpower, etc., so as to ensure instantaneous mobilization for effective management of mine accidents/disasters.
- 3.4.0 Every State/Central Government/Authority vested with the responsibility of issue of mining/quarrying lease shall formulate a comprehensive Digital policy which will allow
 - 3.4.1 availability of details of all active and valid mining/quarrying leases including the GIS (Geographic Information System) coordinates of all points of the lease demarcated by the State Authority on a common web-based platform for easy access / sharing amongst stake holders,
 - 3.4.2 for sharing of all information on production, employment, etc., and contact details of lease holder amongst all stake holders and
 - 3.4.3 archival at District level of booked Digital attendance through Biometric system in mines for being easily accessed.
- 3.5.0 Wherever there exists poor network connectivity, standalone systems shall be continued till network connectivity issue is resolved.

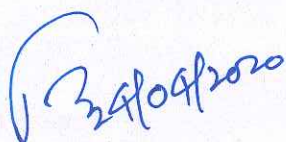
4.0 PREVALENCE OF PNEUMOCONIOSIS/SILICOSIS AMONGST WORKERS, PRESENT STATUS OF DUST CONTROL MEASURES AND STRATEGY FOR IMPROVEMENT

- 4.1 Permissible respirable dust levels be brought down to 1.0 mg/m³ (In case percentage of free Silica in Mines is up to 5) or 5 divided by percentage of free Silica in Dust, from the present level, in the line of prescribed limits of National Institute for Occupational Safety and Health (NIOSH), USA.
- 4.2 For early detection of Silicosis amongst Miners of Stone quarries; Medical examination should be conducted at least once in every year and Chest Radiography once in every two years.
- 4.3 All mining companies shall have the services of at least one Doctor qualified in OH and trained in ILO classification of chest radiographs. DGMS may facilitate necessary training, if needed.
- 4.4 In order to establish a close employer-employee relationship, Mine owners should try to keep the contractual workers on permanent basis as far as practicable, and not to change the workforce frequently. Their details shall be maintained in form A (Register of Employees) and they should be provided with all the benefits due to them, statutorily and otherwise.
- 4.5 State Government shall create facilities like Chest Radiography (X-ray machine 300 mA or more), Spirometry, Audiometry, Blood Biochemistry etc. at Primary/Community Health Centres and also get their Doctors trained in OH and ILO Classification of Chest Radiograph, if necessary with the funds available under District Mineral Fund (DMF).

- 4.6 There shall be at least one referral occupational health centre established in every state, for confirmation and tertiary care of Pneumoconiosis cases.
- 4.7 For getting further insight into various other occupational lung diseases due to dust, Diesel Particulate Matter, etc. appropriate scientific agencies may be engaged.
- 4.8 To create awareness amongst the workers about the dust related disease, mine management shall conduct structured training and awareness programmes at regular intervals.
- 4.9 Every mine owner shall submit a quarterly return relating to measures taken to prevent generation of respirable dust at all work places in the mine.

5.0 STRATEGIES FOR DISASTER PREVENTION IN COAL MINES


- 5.1 The Safety Management Plan (SMP) of every mine shall give adequate priority on developing the Principal Hazard Management Plan (PHMP) based on Risk Assessment and shall provide suitable organizational structure with adequate resources for reducing the risk level as low as reasonably achievable. It shall also be ensured by the owner, agent and manager of every mine that mitigation of such identified principal hazards on an auditable mode is done in accordance with DGMS (Technical) Circular No 3 of 2019 dated 23.12.2019.
- 5.2 The Safety Management Plan (SMP) of every mine shall include specific guidelines for emergency withdrawal and re-entry protocol based on Triggered Action Response Plan (TARP) for all principal hazards having potential to cause multiple fatalities.
- 5.3 The owner, agent and manager of every mine shall encourage their employees to report and record all cases of near-misses/incidences, not resulting in any injury or loss of property but having the potential to cause serious harm to person(s) or property in the mine. It shall also be ensured by the owner, agent and manager that:-
 - 5.3.1 all near-misses or incidences are properly enquired by an official of the mine who shall also make appropriate recommendations for preventing recurrence,
 - 5.3.2 such recommendations are circulated by appropriate mechanisms including digital/electronic mode, to every other mine of the same owner and also amongst other mines of other owners, to create awareness and for designing suitable preventive strategies, and
 - 5.3.3 a properly structured accident/incident management system is evolved under the Safety Management Plan with the basic objective of preventing recurrence of similar such incidences in mines.
- 5.4 The owner, agent and manager of every mine shall ensure that
 - 5.4.1 all immediate steps as may be required after an accident in a mine, including first response like rescue, recovery and medical aid, containment of further escalation or worsening of hazardous conditions and quarantining the place of accident, are carried out,
 - 5.4.2 every case of accident/incident including near-miss is enquired into for finding out root cause(s) using suitable 'root cause analysis techniques',


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- 5.4.3 appropriate corrective actions are suggested using the principle of hierarchy of controls (elimination / substitution / engineering / separation / administrative/ PPE) in respect of all root causes identified through root cause analysis technique, and
- 5.4.4 specific, measurable, accountable, reasonable, timely (SMART) and effective recommendations are made for implementation and necessary follow-up thereof.
- 5.5 The manager of every mine shall ensure that all pre-warning signals are thoroughly investigated with an aim to find out subsequent consequence(s) by adopting the culture of risk assessment with commitment and leadership of the top management. The prevailing risk shall be mitigated by using the principle of hierarchy of controls.
- 5.6 It shall be ensured by the owner, agent and manager of every opencast mine that adequate arrangements exist for dealing with such kinds of emergencies as may be arising at the mine. They shall also establish and maintain a close liaison with agencies like NDRF, SDRF or similar agencies for effectively managing such emergencies. It shall also be ensured that joint exercises are conducted at regular intervals with such agencies so as to ensure the preparedness to deal with actual cases of emergencies.

6.0 OCCUPATIONAL SAFETY AND HEALTH ISSUES OF CONTRACTUAL WORKERS- STRATEGY TO IMPROVE SAFETY AND HEALTH STATUS

- 6.1 Any worker or official, while on duty in active zone of a mine (where any mining operations are being carried out) shall not carry mobile phone. Every mine shall have provision of safe keep storage of mobile phone at suitable place(s). In emergent situation the manager may allow any person or a category of persons to carry mobile phone in such zone.
- 6.2 The contractor workers shall be provided with proper residential facilities outside active zone of the mine. For the purpose, wherever feasible, the principal employer shall, either construct suitable accommodation facilities for the contractual workers or provide a suitable land/site to the contractor to build the residential facilities with all basic amenities. On completion of the contract, the contractor shall hand over the land/site to the principal employer.
- 6.3 The manager of every opencast mine shall frame and implement Standard Operating Procedures (SOP) in respect of regulating vehicle deployment density on the basis of appropriate Risk Assessment procedure.
- 6.4 No person shall be engaged in any job in a mine unless his skill has been assessed by the management through a well-defined process.
- 6.5 Modern gadgets and equipment e.g. training videos, simulators, virtual reality (VR) etc. shall be used for skilling and up skilling of existing and newly appointed contractual employees.


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