



भारत सरकार / Govt. of India
श्रम एवं रोजगार मंत्रालय
Ministry of Labour and Employment
खान सुरक्षा महानिदेशालय
Directorate General of Mines Safety



No. DGMS(S&T)/ (Approval) Circular No. ०१ of 2017 /Dhanbad, Dated 10/03/2017

To
The Owner, Agent and Manager of all Coal Mines

Subject: Approval of dust suppression/prevention devices fitted in drilling and boring equipment used in coal mines under regulation 123(6)(b)(ii) of Coal Mines Regulations' 1957.

At present, dust suppression/prevention devices, other than jet of water directed on the cutting edge to wet the cuttings, fitted in drilling and boring equipment for drilling or boring in stone on surface or belowground in coal mines are required to be approved by Chief Inspector of Mines under regulation 123(6)(b)(ii) of Coal Mines Regulations' 1957. A Gazette Notification was also issued in this regard vide GSR 24, published in the Gazette of India Part II Section 3(i) on 8 February 2014.

Based on the above notification, this Directorate has been approving such devices for use in coal mines by issue of special orders on case to case basis. Now, in order to bring further simplification in its approval, it has been decided that the subject matter may be brought under the domain of general approval. In view of this, a meeting was held on 04.7.2016 at DGMS (HQ), Dhanbad, for technical deliberations on the subject, in which experts from CIMFR, ISM, CMPDI and DGMS participated. After detailed deliberations, a draft standard for manufacturing, testing and use of dust suppression/prevention devices fitted in drilling and boring equipment used in coal mines was finalized, which was further discussed in the meetings of approval Committee of DGMS. Based on the above inputs, the standards and parameters for manufacturing, testing and use of such dust suppression/prevention devices are prescribed below:

1.0 General requirements

- 1.1 The dust suppression/prevention device or any part thereof fitted with drilling and boring equipment used in belowground coal mine shall not be made of alloy and metals likely to give incensive frictional sparks as required under Circular No. DGMS Tech. Circular no. 08 of 1974 or its revised version.
- 1.2 The flame proof and intrinsically safe features of electrical items of the dust suppression/prevention device to be used in belowground coal mines shall also conform to the standards specified in Circular No. DGMS Tech. Circular (Electrical), (Approval) no. 23 dated, 21.12.2015 or its revised version.

- 1.3 (a). The device shall be capable of suppressing/preventing the liberation or release of airborne dust while drilling or boring to such extent as to keep the concentration of respirable dust in the mine atmosphere within the permissible limit prescribed under regulation 123(2) of Coal Mines Regulations' 1957 or as amended from time to time.
- (b). To ensure compliance of clause 1.3(a), amongst others, the dust survey shall be conducted with approved type of dust samplers as specified in regulation 123(2) of Coal Mines Regulations' 1957 or as amended from time to time. During such survey, the dust concentration shall be measured at the exit point of exhaust air of the dust suppression device, at the nearest point of drilling or boring where persons are required to be present and also at operator's normal working position (nose position), while the drilling or boring machine is in operation. The result of every such survey shall be recorded, signed and dated by the official carrying out the survey and the same shall be countersigned by the Manager.
- (c). When result of the dust survey is found in excess of the permissible limit of dust concentration as stipulated under clause 1.3(a), the normal operation of the drilling or boring equipment shall be ceased and it shall not be resumed until the defect therein has been rectified and the requirements of Para 1.3(a) above has been found complied by conducting a dust survey in the manner specified under para 1.3(b) above. Every such incident shall be recorded in a book kept for the purpose and signed and dated by the official carrying out the survey and the same shall be countersigned by the Manager.
- (d) Frequency of the dust survey: The dust survey shall be carried out in respect of every such drilling or boring equipment at the time of its first installation and thereafter at an interval of not exceeding one month as specified in clause 1.3.(b).

2.0 **Testing of the dust suppression/prevention devices**

Prototype Tests: At least one proto type sample of the device shall be subjected to tests by a test house prescribed under the para 6.0 of Approval policy, 2015(II Revision) of DGMS or its revised version, subject to the compliance of clause 1.3(a) of this general approval.

3.0 **Marking**

The following details shall be conspicuously marked on the body of the dust suppression / prevention device:

- Name of the manufacturer or registered trade mark;
- Date of its manufacturing and model;
- Additional marking required by the applicable industrial safety standards.

4.0 **Manufacturer's Responsibilities**

4.1 **The manufacturer shall -**

- i. furnish all the relevant information in respect of specifications and certified copy of test reports or any other information pertinent to their product(s) to the user(s), along with each consignment;
- ii. supply the certified drawing and specifications of the dust suppression/prevention device, which shall not be at variance with the prototype sample as mentioned in Para 2.0, to the user(s); and
- iii. arrange to provide an instruction manual on the storage, maintenance, handling, installation and use of the dust suppression/prevention device to the user(s) along with each consignment.

4.2 The manufacturer shall supply to the user a copy of such valid certificates and test report(s) mentioned in the aforesaid Paras and also a compliance report against conditions mentioned in para No. 1.1 and 1.2 to facilitate use of the dust suppression/prevention devices with drilling or boring machines in the mine.

5.0 **Responsibilities of Owner, Agent and Manager (User)**

5.1 Before using the dust suppression/prevention device in drilling or boring machines in the mines, the user shall ensure that the device conforms to the above mentioned standards.

5.2 The user shall ensure that the manufacturer possesses adequate facilities for manufacturing and testing of the dust suppression/prevention devices.

5.3 The users shall obtain copies of all valid certificate(s) and test report(s) from the manufacturer while purchasing and before using the dust suppression/prevention device in drilling or boring machines in the mine.

5.4 The performance tests required under clause (a), (b), (c) and (d) of para 1.3 shall be the responsibility of the user.


5.5 The user shall ensure that the storage, maintenance, handling, installation and use of the dust suppression / prevention device are done as per the Manual / Operating instructions of the device.

6.0 **Miscellaneous**

6.1 The Chief Inspector of Mines or an Inspector of Mines may inspect, check and examine the manufacturing facilities of the dust suppression/prevention devices at any time and get samples tested during the course of inspection or send such samples for testing at any prescribed test houses/laboratories at the cost of the manufacturer.

- 6.2 The Chief Inspector of Mines or an Inspector of Mines may inspect, check and examine the dust suppression/prevention devices fitted in drilling or boring machines at any time in the mine and get samples tested during the course of inspection or send such samples for testing at any prescribed test houses/laboratories at the cost of Owner, Agent or Manager of the mine.
- 6.3 All users and the manufacturers shall be required to comply with this standard and any deviation or defects found in the product supplied or used in the mine, shall be brought to the notice of this Directorate.
- 6.4 The manufacturers, and the test houses, who are engaged for testing of such dust suppression/prevention devices, and the users shall adhere to the above mentioned standards and parameters while testing, before supplying and using the dust suppression/prevention devices fitted in drilling or boring machines in the mine.
- 7.0 The dust suppression/prevention devices fitted in drilling and boring equipment, with the standards, parameters and testing as mentioned above in this circular, shall be considered as approved by the Chief Inspector of Mines under regulation 123(6) (b) (ii) of the Coal Mines Regulations, 1957.

The dust suppression/prevention device having valid special approval by DGMS shall also be considered at par with those devices approved under this general approval for use in coal mines.


10/03/17
Chief Inspector of Mines





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Directorate General of Mines Safety



No. DGMS(S&T)/ (Approval) Circular No. 02 of 2017 Dhanbad, Dated 10/03/2017

To

The Owner, Agent and Manager of all Metalliferous Mines

Subject: Approval of dust suppression/prevention devices fitted in drilling and boring equipment used in metalliferous mines under regulation 124(6)(b)(ii) of Metalliferous Mines Regulations' 1961.

At present, the dust suppression/prevention devices, other than a jet of water directed on the cutting edge to wet the cuttings, fitted in drilling and boring equipment for drilling or boring on surface or belowground in metalliferous mines are required to be approved by Chief Inspector of Mines under regulation 124(6)(b)(ii) of Metalliferous Mines Regulations' 1961. A Gazette Notification was also issued in this regard vide GSR 25, published in the Gazette of India Part II Section 3(i) on 8 February 2014.

Based on the above notification, this Directorate has been approving such devices for use in metalliferous mines by issue of special orders on case to case basis. Now, in order to bring further simplification in its approval, it has been decided that the subject matter may be brought under the domain of general approval. In view of this, a meeting was held on 04.7.2016 at DGMS (HQ), Dhanbad, for technical deliberations on the subject, in which experts from CIMFR, ISM, CMPDI and DGMS participated. After detailed deliberations, a draft standard for manufacturing, testing and use of dust suppression/prevention devices fitted in drilling and boring equipment used in metalliferous mines was finalized, which was further discussed in the meetings of approval Committee of DGMS. Based on the above inputs, the standards and parameters for manufacturing, testing and use of such dust suppression/prevention devices are prescribed below:

1.0 General requirements

- 1.1 (a) The device shall be capable of suppressing/preventing the liberation or release of airborne dust while drilling or boring to such extent as to keep the concentration of respirable dust in the mine atmosphere within the permissible limit prescribed under regulation 124(2) of Metalliferous Mines Regulations' 1961 or as amended from time to time.
- (b) To ensure compliance of clause 1.1(a), amongst others, the dust survey shall be conducted with approved type of dust samplers as specified in regulation 124(2) of Metalliferous Mines Regulations' 1961 or as amended from time to time. During such survey, the dust concentration shall be measured at the exit point of exhaust air of the dust suppression device, at the nearest point of drilling or boring where persons are required to be present and also at operator's normal working position (nose position), while the drilling or boring machine is in operation. The result of every such survey shall be recorded, signed and dated by the official carrying out the survey and the same shall be countersigned by the Manager.

- (c) When result of the dust survey is found in excess of the permissible limit of dust concentration as stipulated under clause 1.1(a), the normal operation of the drilling or boring equipment shall be ceased and it shall not be resumed until the defect therein has been rectified and the requirements of Para 1.1(a) above has been found complied by conducting a dust survey in the manner specified under para 1.1(b) above. Every such incident shall be recorded in a book kept for the purpose and signed and dated by the official carrying out the survey and the same shall be countersigned by the Manager.
- (d) Frequency of the dust survey: The dust survey shall be carried out in respect of every such drilling or boring equipment at the time of its first installation and thereafter at an interval of not exceeding one month as specified in clause 1.1(b).

2.0 **Testing of the dust suppression/prevention devices**

Prototype Tests: At least one proto type sample of the device shall be subjected to tests by a test house prescribed under para 6.0 of Approval policy, 2015 (II Revision) of DGMS or its revised version, subject to the compliance of clause 1.1(a) of this general approval.

3.0 **Marking**

The following details shall be conspicuously marked on the body of the dust suppression / prevention device:

- Name of the manufacturer or registered trade mark;
- Date of its manufacturing and model
- Additional marking required by the applicable industrial safety standards.

4.0 **Manufacturer's Responsibilities**

4.1 **The manufacturer shall -**

- i. furnish all the relevant information in respect of specifications and certified copy of test reports or any other information pertinent to their product(s) to the user(s), along with each consignment;
- ii. supply the certified drawing and specifications of the dust suppression/prevention device, which shall not be at variance with the prototype sample as mentioned in Para 2.0, to the user(s); and
- iii. arrange to provide an instruction manual on the storage, maintenance, handling, installation and use of the dust suppression/prevention device to the user(s) along with each consignment.

4.2 The manufacturer shall supply to the user a copy of such valid certificates and test report(s) mentioned in the aforesaid Paras to facilitate use of the dust suppression/prevention devices with drilling or boring machines in the mine.

5.0 **Responsibilities of Owner, Agent and Manager (User)**

5.1 Before using the dust suppression/prevention device in drilling or boring machines in the mines, the user shall ensure that the device conforms to the above mentioned standards.

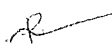
- 5.2 The user shall ensure that the manufacturer possesses adequate facilities for manufacturing and testing of the dust suppression/prevention devices.
- 5.3 The users shall obtain copies of all valid certificate(s) and test report(s) from the manufacturer while purchasing and before using the dust suppression/prevention device in drilling or boring machines in the mine.
- 5.4 The performance tests required under clause (a), (b), (c) and (d) of para 1.1 shall be the responsibility of the user.
- 5.5 The user shall ensure that the storage, maintenance, handling, installation and use of the dust suppression / prevention device are done as per the Manual / Operating instructions of the device.

6.0 Miscellaneous

- 6.1 The Chief Inspector of Mines or an Inspector of Mines may inspect, check and examine the manufacturing facilities of the dust suppression/prevention devices at any time and get samples tested during the course of inspection or send such samples for testing at any prescribed test houses/laboratories at the cost of the manufacturer.
- 6.2 The Chief Inspector of Mines or an Inspector of Mines may inspect, check and examine the dust suppression/prevention devices fitted in drilling or boring machines at any time in the mine and get samples tested during the course of inspection or send such samples for testing at any prescribed test houses/laboratories at the cost of Owner, Agent or Manager of the mine.
- 6.3 All users and the manufacturers shall be required to comply with this standard and any deviation or defects found in the product supplied or used in the mine, shall be brought to the notice of this Directorate.
- 6.4 The manufacturers, and the test houses, who are engaged for testing of such dust suppression/prevention devices, and the users shall adhere to the above mentioned standards and parameters while testing, before supplying and using the dust suppression/prevention devices fitted in drilling or boring machines in the mine.
- 7.0 The dust suppression/prevention devices fitted in drilling and boring equipment, with the standards, parameters and testing as mentioned above in this circular, shall be considered as approved by the Chief Inspector of Mines under regulation 124(6) (b) (ii) of the Metalliferous Mines Regulations, 1961.

The dust suppression/prevention device having valid special approval by DGMS shall also be considered at par with those devices approved under this general approval for use in metalliferous mines.


Chief Inspector of Mines





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DGMS Circular (Legislative) No. 01 /Dhanbad, dated 27th, April, 2017

To

All Owners /Agents/ Managers of Mines

Subject: Amendment in the Mines Rules, 1955 vis-à-vis promulgation of "Ease of compliance to maintain registers under various Labour Laws Rules, 2017."

1.0 Government of India has taken several initiatives including legislative and procedural reforms to reduce the complexity of compliance of labour laws and make them user friendly. While reviewing the requirement of maintaining various Registers/Forms provided under various labour laws, it was observed that under 9 (nine) Central Acts, including the Mines Act 1952, governing employment of labour in mines, factories and establishments required 56 different Registers/Forms to be maintained. These Registers/Forms had multiplicity in entries which were overlapping in nature. Many of the fields in some Forms and Registers were, as on date, redundant too.

An exercise was undertaken in the Ministry of Labour and Employment, Government of India, to do away with maintenance of multiple Forms and Registers and bring about commonality in the data/fields of such Registers/Forms, and reduce the number of Registers & Forms required to be maintained under various Central Acts, so as to promote ease of compliance of various labour laws and also reduce the cost of maintenance of such Registers/Forms.

In this regard, the Ministry of Labour and Employment, Govt. of India has notified "**Ease of compliance to maintain registers under various Labour Laws Rules, 2017**" on 21st February, 2017 which has in effect replaced 56 Registers/Forms by 5 Registers/Forms that shall now be required to be maintained under the new Rules.

These Rules are available on the website of the Ministry of Labour and Employment at the Link <http://labour.gov.in/whatsnew/ease-compliance-maintain-registers-under-various-labour-laws-rules-2017>.

2.0 After coming into force of these new Rules, only five Registers/Forms are required to be maintained under the Mines Rules, 1955. The salient points of amendments made in the Mines Rules, 1955, are briefly given hereunder:

- (i) The registers required to be maintained in Form B, Form C, Form D, Form E, Form F, Form G, Form H and Form I have been omitted.



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No. DGMS(S&T)/ (Tech.) Circular No. 01 of 2017 /Dhanbad, Dated 17/05/2017

To

The Owner, Agent and Manager of all Coal Mines

Sub: Strata monitoring in longwall workings in coal mines –reg.

Effective strata control is vital for safe and productive longwall operation in any geomining condition. Effectiveness of strata control can be evaluated by a suitable strata monitoring system. During operation of a longwall panel, a thorough investigation of the associated strata and support systems is required to understand the geomechanical behaviour of the strata and the performance of the support systems. This enables in effective tackling of the problems arising from strata and in ensuring safety of the men and machineries.

Monitoring of strata behaviour during extraction of longwall panel is not only required for ensuring safety and stability of longwall workings but also to get essential inputs for verification of existing design parameters of the panel, proper planning of future longwall panels, assessing suitable support requirements, etc. Therefore, it is felt that a standard protocol is required for strata monitoring in longwall workings.

In view of the above, a technical workshop was conducted on "latest trends in strata control in longwall mining with a special reference to strata monitoring techniques" on 20.1.2017 at DGMS, Dhanbad, which was attended by 57 participants from different stakeholders like mining industry, research & academic institutions and DGMS. Based on the inputs drawn from the deliberations made in the workshop, the following guidelines have been formulated for strata monitoring in longwall workings:

I. Strata monitoring plan

The Owner, Agent or Manager of every mine shall formulate and implement a strata monitoring plan for every longwall panel in the mine under the guidance of a scientific agency having expertise in this field. The plan shall contain:

- i) proposed instrumentation scheme
- ii) monitoring schedules,
- iii) list of the persons engaged in implementation of the plan and their duties & responsibilities,

- iv) formats for documentation and records of the readings of strata monitoring, and
- v) Any other information related to strata monitoring.

II. The strata monitoring plan referred under Para I above, shall be prepared based on the geo-technical studies by a scientific agency having expertise in this field and every such plan, shall, inter alia, include:-

1.0 Monitoring of gate roadways

- 1.1 Roof to floor convergence of tail and main gate roadways shall be monitored on regular basis by convergence indicators, once at least in every shift up to a distance of atleast 40m from the face at an interval not exceeding 10m.
- 1.2 Load cells shall be installed in main gate and tailgate roadways up to a distance of minimum 40 m from the face at an interval not exceeding 10 m on hydraulic/friction props or with the roof bolts as the case may be. Readings of the load cells shall be recorded in every shift.
- 1.3 The convergence measurements as required under clause no. 1.1 and load cell readings as required under clause no. 1.2 above shall be taken simultaneously.
- 1.4 If roof bolts are used as roof supports in gate roadways, at least 2 to 3 instrumented roof bolts shall be installed in each gate roadway at strategic places to determine the loading pattern on the bolts.
- 1.5 Multi point extensometers/ Tell tales/Sonic probe extensometers shall be installed in main gate and tail gate roadways at an interval not exceeding 50m to monitor dilation/ bed separation in the roof strata. The instruments shall be constantly maintained in the gate roadways of the panel at least upto a distance of 400 m from the face.

2.0 Monitoring of vertical induced stresses (abutment stresses) in barrier/chain pillars and longwall pillar

- 2.1 To predict abutment stresses in longwall pillar under extraction, stress cells shall be installed in the longwall pillar ahead of the face from main gate and tail gate roadways at an interval of 100 m. The stress cells shall be constantly maintained in the longwall pillar at least upto a distance of 400m from the face. The first stress cell shall be installed at the expected main weighting position.
- 2.2 To monitor the stability of the barrier/chain pillars and predict magnitude and location of the abutment stresses in it, stress cells shall be installed in the barrier/chain pillars from main gate and tailgate roadways at an interval of 200 m up to a distance of minimum 400 m from the face. The first stress cells shall be installed at the expected main weighting position.

3.0 Monitoring of load and convergence of Powered Roof Supports (PRS)

- 3.1 Pressure in the gauges fitted in leg circuits of the Powered Roof Supports (PRS) at the face shall be recorded once at least in every shift.
- 3.2 If there is no automatic continuous monitoring system of leg closure of PRS, measurement of convergence (leg closure) of the PRS shall be carried out by tape measurements at least once in every shift during idle period and daily once in other cases.
- 3.3 If there are no automatic continuous monitoring system of leg pressure and leg closure of PRS, the load on and convergence of at least 10 PRS at strategic locations shall be continuously monitored with data loggers to understand the loading pattern on PRS and its response.

4.0 Progressive caving of strata in the goaf

To study progressive caving behaviour of roof strata in the goaf with face retreat, at least three (3) multi-point Borehole Extensometers shall be installed from the surface along the central line of the longwall panel at not more than 500 m interval. In case of presence of goaved-out workings in the overlying seams vertically above the longwall panel, the location and interval between such Extensometers may vary to the extent that may be required to avoid drilling of boreholes through such goaved-out workings.

5.0 Subsidence study

Subsidence survey and maintenance of its records shall be done as per the DGMS circular no 4 of 1988 or its revised version.

6.0 If the roof strata of a longwall panel has been categorised as cavable with substantial difficulty or cavable with extreme difficulty based on Caving Index, the following additional precautions shall also be taken in the panel;

- 6.1 Continuous monitoring of strata shall be done using micro-seismic monitoring system with geophones installed from the surface to analyse the possible time of failure and location of the failure zones within the roof strata.
- 6.2 Leg pressures and leg closures of Powered Roof Supports (PRS) shall be monitored continuously by using real time monitoring and automatic data acquisition and interpretation systems.

7.0 In the proximity of the geologically disturbed areas of a longwall panel, during development (drivage of gate roadways and set up gallery) and salvaging of longwall panels the strata monitoring shall be carried out as per the instrumentation scheme suggested by the scientific agency referred under para-I above.

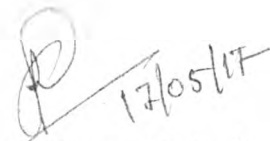
8.0 For every longwall panel, suitable trigger action response plans shall be formulated and integrated with emergency initiated protocols.

9.0 Plan: A part plan of the longwall workings depicting strata monitoring instrumentation with suitable index, shall be kept and maintained in the office of the mine.

10.0 Supervision

In every longwall panel, strata monitoring plan shall be kept under the charge of an Assistant Manager holding 1st Class Manager's Certificate of Competency with relevant experience in longwall, who shall also be assisted with adequate number of trained supervisors and manpower.

The owners, Agents and Managers of all coal mines having longwall workings are advised to ensure compliance with this circular.

A handwritten signature in black ink, appearing to be 'Prasanta Kumar Sarkar', is written over a diagonal line. To the right of the signature, the date '17/05/17' is written in black ink.

(Prasanta Kumar Sarkar)
Director General of Mines Safety



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 (Legis.) Circular No. 02 of 2017 Dhanbad, dated

06/11/2017

To

All Owners, Agents and Managers of Coal Mines

Subject: Standards of illumination in opencast coal mines

Sir,

In pursuance of Regulation 154(2) of Coal Mines Regulations, 1957, the standards of illumination to be provided during working hours at different places or areas where natural light is insufficient in opencast coal mines have been specified vide Government notification no. GSR-617(E), dated 28.04.2017, published in the Gazette of India dated 21.06.2017, part II, Section 3(i). The Notification is reproduced below for guidance and strict compliance in all opencast coal mines.

Notification

Dhanbad, the 28th April, 2017

G.S.R. No. 617 (E).--- In exercise of the powers conferred on me as Chief Inspector of Mines, under clause (b) of sub-regulation (2) of Reg. 154 of the Coal Mines Regulations, 1957, I, in supersession of Notification No. GSR-804, dated 18th June, 1975, published in the Gazette of India Part II, Section 3(i) on 28th June, 1975, hereby specify that the standards of lighting to be provided during working hours at different places or areas, where natural light is insufficient in opencast coal mines shall be in the manner as specified in the following table and in conformity with the general guidelines for illumination mentioned thereunder:

STANDARDS OF ILLUMINATION IN OPENCAST COAL MINES

Abbreviations- V: Vertical; H: Horizontal

Serial No.	Place/Area to be illuminated	Minimum standards of illumination to be provided (in lux)
1	Work place of Heavy Machinery	15 H, 25 V (so as to cover depth and height through which the machine operates.)

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2	Drilling operations	
	(i) Area where drilling rig works	25 V (so as to illuminate full height of the drilling rig)
	(ii) Area where drill holes exists	15 H
3	Places where manual work is done	15 H, 25 V
4	Places where loading, unloading or transfer, loading of dumpers, trucks or train is carried on (including OB Dump and Coal Stack Yard)	15 H, 15 V
5	Operators cabins of machines or mechanisms	50 H at all places of operation
6	Haul roads for Trucks and Dumpers	10 H
7	Rail haulage track in the pit	10 H
8	Roadways and footpaths from bench to bench	10 H
9	Permanent paths for use of persons employed etc.	10 H
10	In-pit Crusher/Feeder Breaker	40 H
11	Hand Picking Points	50 H
12	Conveyers	
	(a) Transfer points and drive/tail end area	40 H
	(b) Along conveyor	20 H
13	Coal Handling Plant	
	(a) Places of crushing, screening, segregation and loading/unloading	40 H
	(b) Operation points	50 H
	(c) Other places (in general)	20 H
14	Pumping Station	40 H
15	(i) Electrical Sub-station	100 H, 50 V
	(ii) Other places of operation of electrical apparatus/equipment	20 H, 20 V
16	First Aid station	50 H
17	Rest shelter	30 H
18	Workshop	100 H, 50 V
19	Parking Yard	50 H
20	General working areas as determined by the Manager in writing	10 H at the level of surface to be illuminated

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Guidelines for mine illumination

1. The mine lighting should be designed and installed with proper lamps and fixtures in regard to height, orientation, spacing and reflectors or other accessories, so as to secure a uniform distribution of light on the work area for visual comfort and avoiding objectionable shadows, sharp contrasts of intensity, glare, light clutter (excessive groupings of light) and light pollution to prevent strain on the eyes of the workmen, work fatigue and medically defined stress.
2. Portable lighting shall be provided at places, where the permanent/fixed lighting is not possible.
3. At strategic locations like electric substation, and any other places as determined by the Manager, emergency lighting arrangement by separate source shall also be provided.
4. In case of haul roads, orientation of light fittings should be kept so adjusted as to have emittance of light across the road and not along the road. Where the width of haul roads is more, the lighting arrangements shall be provided either by rows of lights erected on both sides of the road or by a centrally erected row over the divider, so as to maintain illumination as per standard.
5. Lighting arrangement at working places of heavy machineries, dump/stack yard and other loading/unloading areas shall be such that the formation of dark zone is avoided.
6. Considering high mobility of hydraulic excavators, the faces/benches worked by such machineries shall, as far as practicable, be illuminated by light source of matching mobility so as to avoid chances of lag for want of shifting.
7. Dump/stack yards shall be illuminated by suitable numbers of high mast towers/light source. It shall also be ensured that adequate light reaches up to edges of the active dump.
8. For better implementation of these standards, the manager of every mine shall formulate a detailed written "Illumination Scheme", which may include an "Illumination Plan" and duties and responsibilities of Key officials for the purpose.
9. In respect of any particular place or operation in a mine, where due to existence of some special conditions the manager is of the opinion that compliance as per stipulated minimum standard is not reasonably practicable, he may provide illumination in variance thereof, if he has indicated the modified minimum illumination to be provided for such place or operation, as the case may be, in the "Illumination Scheme" with proper justification for the same and submitted a copy thereof to the Regional Inspector.
10. Illumination Survey:
 - (i) The manager of every mine shall arrange to conduct Lighting Survey once at least in every month to ensure adequacy of illumination.
 - (ii) While making such survey, the measurement of lighting shall also be taken at the point farthest from the source of light lying within the limit of the work place or in haul road or travelling or haulage roadway, as the case may be.

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- (iii) A record of every such survey shall be maintained and signed by the competent person making the survey and countersigned and dated by the manager.

11. Illumination Plan:

- (i) The manager of every mine shall ensure that an Illumination Plan, indicating the location of places, type of illuminating devices, fixtures, lamps, supports, any other devices for illumination and showing required as well as measured value of light at various places to be illuminated, is maintained. Where any area of the mine is not in use or not needed to be lighted, the same shall be clearly marked and demarcated on the plan with reasons to be recorded. The plan shall be kept signed and dated by the surveyor and the official authorized for maintaining the lighting standard and countersigned and dated by the manager.
- (ii) The Illumination Plan shall be brought up to date in every month based on the monthly illumination survey and considering the current status of workings.

[File No Z-20041/01/2017/S&T(HQ)]

Prasanta Kumar Sarkar, Chief Inspector of Mines "

This Circular supersedes all the earlier issued Circulars on Standards of illumination in opencast coal mines.


(Prasanta Kumar Sarkar)
Director General of Mines Safety



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Directorate General of Mines Safety



DGMS(Tech)(MAMID)Circular No. 02 of 2017

Dhanbad : 15/06/2017

To

All Owner, Agent & Managers of Coal Mines.

Sir,

Subject : LOCK OUT & TAG OUT – Energy shut down procedures

In coal mines, about 3% of accidents were caused due to Electricity. Majority of these accidents were caused by unexpected energization or startup of machines / equipment or by uncontrolled release of energy. The electrical accidents can be prevented by proper Lock out / Tag out procedures. The philosophy of LOCK OUT/ TAG OUT – Energy shut down Procedures is as such, not new in our country and being followed in oil field installations of CAIRN INDIA and in cement industry (including mines) of reputed organizations.

Electrical Safety is observed in mines (as well as in other Industries) as per laid down Practices of Indian Standards / NEC and Provisions of Legislation of Indian Electricity Act, 2003 and Regulations of Central Electricity Authority Regulations, 2010. As such, the provisions made there under are adequately covering the requirements of safe work practices and thereby to eliminate risks associated in unsafe working methods on use of Electricity. However, when it comes to underground mines, the prescribed work permit procedure as per BIS: 5216 is not sufficiently followed for varied reasons. This is more so in the case of coal underground mines where the workforce at lower levels, generally, prefers simple methods of working and goes away. For lack of working discipline, adequate monitoring and control, people tend to go in short cut methods and invite risks.

The Lock out and Tag out energy shutdown procedures could well be an answer, in case of our underground mines, bringing some changes to suit our conditions of working and without compromising on the philosophy of work permit procedures laid down by BIS under standard: 5216.

Philosophy: To perform a service and maintenance work on industrial equipment safely, you must understand the importance of energy control. A LOCKOUT is a method of preventing mishaps by keeping equipment from being accidentally started or switched ON. This method can be used for disconnecting switches, circuit breakers, valves or

other isolation mechanisms and to put them in safe / off position. It is physically an attachment of lock so that the equipment cannot be energized. In a TAGOUT, the energy isolating device is placed in safe position and a written warning is attached to it.

LOCKOUT means to physically neutralize all energies in a piece of equipment before beginning any maintenance or repair work. Lock out involves stopping all energy flows by turning off switches on supply lines. It also involves locking physically the switches and securing the machine, device or supply lines in a de-energised state.

TAGOUT means placing a warning tag or sign (TAGOUT device) on an energy isolating device, warning not to operate the machinery until the TAGOUT device is removed. The purpose is to alert other employees about the status of a machine or a system, why it has been taken out of service and identity of the individual who has applied the LOCKOUT.

Principles of practices:

These LOCKOUT and TAGOUT materials are to be supplied by the employer to their employees and the employer brings out a policy of answerability, accountability for all their acts / decisions taken during production, maintenance, servicing installation, dissembling of machines etc., which are generally, the areas where accidents take place in a work place.

- This Energy isolation and LOCKOUT / TAGOUT are to be carried out by trained employees who are also authorised to perform service or maintenance.
- Before applying LOCKOUT / TAGOUT, all employees who work in the affected area must be notified.
- The control of hazardous energy or sources is to be done according to a six step procedure.

Ground for shutdown: Before any equipment is turned off in order to lock or tag it out, It is required to know the types and amounts of energy that power it, the hazards of that energy and how that energy can be controlled.

Equipment shutdown: The OEM's recommended procedures by using operating controls shall be followed to shut the system down for the equipment so that no one is endangered during shutdown.

Equipment isolation:

- (i) All energy isolating devices shall be installed so that the equipment is isolated from its energy sources.
- (ii) All primary and secondary power supplies shall be isolated as well so as to avoid any back feeding of source of supply into the equipment under service / maintenance of job. No short cut methods are to be employed by just removing fuses and it shall be ensured a total disconnection of source of energy of power.

- ✓ The policy thus framed is required to be reviewed and updated as per the changing situations.

How to identify lockout situation:

- It is required to assess all processes, work activities and machinery and, where and when lockouts are needed to be identified.
- Maintenance work will be a major area where lockout needs are more. The Information may be through work place inspections, recommendations through ISO and Inspections by statutory authorities.
- Every machine, device or process that will require a lockout is to be listed. More than one lockout may be required for a single machine or system.

LOTO procedures

- ❖ Procedure should be in writing and communicated to all employees and departments concerned.
- ❖ They should include the Supervisors in the work areas.
- ❖ All lockouts are to be authorised by work permit.
- ❖ Lockout shall stay, if work is not completed at the end of the shift.
- ❖ Completed work is to be reported to the person in-charge for signing off the work permit.
- ❖ The procedures should identify person responsible for performing lockout, person responsible for ensuring the lockout properly, energy sources to be controlled in the lockout, location of control panels, power sources, special hazards, personnel protective equipment, step by step lockout procedure, testing procedure etc., to ensure that all energies are controlled safely.
- ❖ Step by step procedure for removing the lockout etc.,

Lockout material including key operated Locks, locking devices shall be sturdy for issuing to workers who service or maintain equipment. An identification tag must be securely attached to the lock. Each worker will be issued only one key. It is important that for their personal protection, each worker and /or for person working in or on a machine places his / her safety lock on the disconnecting switch. It is ensured that tags are used to spotlight the work in progress, giving details of work being done. Only when the work is completed and the work permit is signed off, each worker is allowed to remove his or her lock. The last lock to be removed should be that of a person supervising the lock out. This lockout should be the removed by the person in charge and this responsibility should not be delegated.

Requirements of Training

All workers performing lockouts and their supervisors must receive training. The training should address importance of lockouts, legal requirements of lockouts, safety and employer's policy, energy forms, hazards and procedures on administrative and work related that must be followed.

Lockout / Tagout: All energy isolating devices are to be locked, tagged or both according to recommended and framed safety LOCKOUT / TAGOUT procedures put in place as a policy. Only standardized devices supplied by the employer shall be used and they are not to be used for anything else. If lock cannot be placed directly on the energy control, lockout devices can be used. When lockout is used, every other employee can also lockout a single energy isolating device by using multiple locks. For big jobs, lockout box can be used to maintain control over large number of padlocks and keys. The tags are to be used along with the locks by attaching them at same points as locks are placed or as close to it as possible. The Tags are to be filled completely and correctly.

How to control stored energy: The following steps are necessary to guard against stored energy left in the equipment after it has been isolated from its energy sources.

- (i) Inspect the system to make sure all parts have stopped.
- (ii) Install ground wires i.e. discharge rod connecting to earth.
- (iii) In case of other sources as applicable, relieve trapped pressure, release tension on the springs or block the movement of spring driven parts, block or brace the parts that could fall because of gravity.

Equipment isolation verification

- (i) The work areas where there is likelihood of causing danger should be free of personnel.
- (ii) Verify that the main disconnecting switch cannot be moved to ON position.
- (iii) Use a testing meter to check the switch that source of power is fully isolated.
- (iv) Press all ON buttons and other activating controls on equipment itself to verify that the source is isolated.
- (v) Shut off all machine controls when the testing is finished.

A clear well defined policy supported by administrative and control procedures and proper training is essential for lockouts to be effective. A systematic approach would be drawn to develop a lockout policy.

- ✓ The policy is required to identify lockout situations, to develop procedures, to train workers and to enforce as per the prescribed recommendations.
- ✓ The written lockout policy should make reference to Employer's general safety policy and reference to applicable statutes / laws. It should clearly outline responsibilities and refer to procedures to be followed. The policy should state employer's intent and commitment to protect the safety of personnel and equipment.
- ✓ The policy should identify all activities, machines, equipment and processes where lockout is required.
- ✓ Appropriate persons shall be made responsible for lockouts and to be ensured lockout are performed by authorised persons only.
- ✓ Procedures are to be framed for each lockout situation and training of those who perform lockouts is an important aspect of policy.


The importance of procedures, lockout errors such as the equipment is inoperable or too small to warrant a lockout etc., shall be brought out in methodology of training. The use and care of personal protective equipment, proper use of tools etc., shall be addressed in the training. In the training sessions, mock locks outs shall be conducted and tested, and refresher classes shall be provided periodically.

Enforcement and updating lockout policy

The Enforcement of policy will be effective, if persons responsible are indentified and accountable for lapses. The best way is to include in their job descriptions. The policy should also put emphasis on individuals' achievements for duly rewarding them where it resulted in productivity with high safety standards.

It is also required to review lockout procedures periodically and revise them in light of any problems that may have been identified. When change in a process or equipment, Lockout requirements also change and require Review and revision.

Yours faithfully,


15/06/17

(P.K. Sarkar)
Director General of Mines Safety



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Directorate General of Mines Safety



No. DGMS (Legis.) Circular No. 03 of 2017 Dhanbad, dated

06/11/2017

To

All Owners, Agents and Managers of Metalliferous Mines

Subject: Standards of illumination in opencast metalliferous mines

Sir,

In pursuance of Regulation 148(2) of Metalliferous Mines Regulations, 1961, the standards of illumination to be provided during working hours at different places or areas where natural light is insufficient in opencast metalliferous mines have been specified vide Government notification no. GSR-618(E), dated 28th April, 2017, published in the Gazette of India dated 21st June, 2017, Part II Section 3(i). The said Notification is reproduced below for guidance and strict compliance in all opencast metalliferous mines.

Notification

Dhanbad, the 28th April, 2017

G.S.R. No. 618(E).---- In exercise of the powers conferred on me as Chief Inspector of Mines, under clause (b) of sub-regulation (2) of Regulation 148 of the Metalliferous Mines Regulations, 1961, I, in supersession of Notification No. GSR-829, dated 18th June 1975, published in the Gazette of India Part II, Section 3(i) on 5th July 1975, hereby specify that the standards of lighting to be provided during working hours at different places or areas, where natural light is insufficient in opencast metalliferous mines shall be in the manner as specified in the following table and in conformity with the general guidelines for illumination mentioned thereunder:

STANDARDS OF ILLUMINATION IN OPENCAST METALLIFEROUS MINES

Abbreviations- V: Vertical; H: Horizontal

Serial No.	Place/Area to be illuminated	Minimum standards of illumination to be provided (in lux)
1	Work place of Heavy Machinery	15 H, 25 V (so as to cover depth and height through which the machine operates.)

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2	Drilling operations	
	(i)Area where drilling rig works	25 V (so as to illuminate full height of the drilling rig)
	(ii)Area where drill holes exists	15 H
3	Places where manual work is done	15 H, 25 V
4	Places where loading, unloading or transfer, loading of dumpers, trucks or train is carried on (including OB Dump and Mineral/Ore Stack Yard)	15 H, 15 V
5	Operators cabins of machines or mechanisms	50 H at all places of operation
6	Haul roads for Trucks and Dumpers	10 H
7	Rail haulage track in the pit	10 H
8	Roadways and footpaths from bench to bench	10 H
9	Permanent paths for use of persons employed etc.	10 H
10	In-pit Crusher/Feeder Breaker	40 H
11	Hand Picking Points	50 H
12	Conveyors	
	(a) Transfer points and drive/tail end area	40 H
	(b) Along conveyor	20 H
13	Mineral/Ore Handling Plant	
	(a) Places of crushing, screening, segregation and loading/unloading	40 H
	(b) Operation points	50 H
	(c) Other places (in general)	20 H
14	Pumping Station	40 H
15	(i) Electrical Sub-station	100 H, 50 V
	(ii) Other places of operation of electrical apparatus/equipment	20 H, 20 V
16	First Aid station	50 H
17	Rest shelter	30 H
18	Workshop	100 H, 50 V
19	Parking Yard	50 H
20	General working areas as determined by the Manager in writing	10 H at the level of surface to be illuminated

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Guidelines for mine illumination:

1. The mine lighting should be designed and installed with proper lamps and fixtures in regard to height, orientation, spacing and reflectors or other accessories, so as to secure a uniform distribution of light on the work area for visual comfort and avoiding objectionable shadows, sharp contrasts of intensity, glare, light clutter (excessive groupings of light) and light pollution to prevent strain on the eyes of the workmen, work fatigue and medically defined stress.
2. Portable lighting shall be provided at places, where the permanent/fixed lighting is not possible.
3. At strategic locations like electric substation, and any other places as determined by the Manager, emergency lighting arrangement by separate source shall also be provided.
4. In case of haul roads, orientation of light fittings should be kept so adjusted as to have emittance of light across the road and not along the road. Where the width of haul roads is more, the lighting arrangements shall be provided either by rows of lights erected on both sides of the road or by a centrally erected row over the divider, so as to maintain illumination as per standard.
5. Lighting arrangement at working places of heavy machineries, dump/stack yard and other loading/unloading areas shall be such that the formation of dark zone is avoided.
6. Considering high mobility of hydraulic excavators, the faces/benches worked by such machineries shall, as far as practicable, be illuminated by light source of matching mobility so as to avoid chances of lag for want of shifting.
7. Dump/stack yards shall be illuminated by suitable numbers of high mast towers/light source. It shall also be ensured that adequate light reaches up to edges of the active dump.
8. For better implementation of these standards, the manager of every mine shall formulate a detailed written "Illumination Scheme", which may include an "Illumination Plan" and duties and responsibilities of Key officials for the purpose.
9. In respect of any particular place or operation in a mine, where due to existence of some special conditions the manager is of the opinion that compliance as per stipulated minimum standard is not reasonably practicable, he may provide illumination in variance thereof, if he has indicated the modified minimum illumination to be provided for such place or operation, as the case may be, in the "Illumination Scheme" with proper justification for the same and submitted a copy thereof to the Regional Inspector.

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10. Illumination Survey:

- (i) The manager of every mine shall arrange to conduct Lighting Survey once at least in every month to ensure adequacy of illumination.
- (ii) While making such survey, the measurement of lighting shall also be taken at the point farthest from the source of light lying within the limit of the work place or in haul road or travelling or haulage roadway, as the case may be.
- (iii) A record of every such survey shall be maintained and signed by the competent person making the survey and countersigned and dated by the manager.

11. Illumination Plan:

- (i) The manager of every mine shall ensure that an Illumination Plan, indicating the location of places, type of illuminating devices, fixtures, lamps, supports, any other devices for illumination and showing required as well as measured value of light at various places to be illuminated, is maintained. Where any area of the mine is not in use or not needed to be lighted, the same shall be clearly marked and demarcated on the plan with reasons to be recorded. The plan shall be kept signed and dated by the surveyor and the official authorized for maintaining the lighting standard and countersigned and dated by the manager.
- (ii) The Illumination Plan shall be brought up to date in every month based on the monthly illumination survey and considering the current status of workings.

[File No Z-20041/02/2017/S&T(HQ)]

Prasanta Kumar Sarkar, Chief Inspector of Mines "

This Circular supersedes all the earlier issued Circulars on Standards of illumination in opencast metalliferous mines.


06/11/17
(Prasanta Kumar Sarkar)
Director General of Mines Safety



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Directorate General of Mines Safety



DGMS(Tech)(MAMID)Circular No. 03 of 2017

Dhanbad : 15/06/2017

To
All Owner, Agent & Managers of Coal Mines

Subject : Occurrence of accidents – Alert thereof.

Sir,

Sharing of information about accidents/incidents and injuries is one of the effective strategies to bring awareness about the cause of accidents/incidents in order to sensitized all concerned so that remedial measures can be taken to prevent recurrence of similar type of accidents/incidents. A menu "Alert/Hazard" has been provided in DGMS website www.dgmd.gov.in where alerts regarding accidents/incident are uploaded.

You are requested to view the website regularly so as to get latest information of accident occurring in mines with a view to take necessary measures to eliminate/reduce such risk(s) in your mine(s).

Proactive action(s), taken at your end, shall go a long way in reducing the recurrence of similar type of accidents/incidents in future.

Yours faithfully,


15.06.17

(P.K. Sarkar)

Director General of Mines Safety



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Directorate General of Mines Safety



DGMS Circular (Legislative) No. 01

/Dhanbad, dated 27th, April, 2017

To

All Owners / Agents / Managers of Mines

Subject: Amendment in the Mines Rules, 1955 vis-à-vis promulgation of "Ease of compliance to maintain registers under various Labour Laws Rules, 2017."

1.0 Government of India has taken several initiatives including legislative and procedural reforms to reduce the complexity of compliance of labour laws and make them user friendly. While reviewing the requirement of maintaining various Registers/Forms provided under various labour laws, it was observed that under 9 (nine) Central Acts, including the Mines Act 1952, governing employment of labour in mines, factories and establishments required 56 different Registers/Forms to be maintained. These Registers/Forms had multiplicity in entries which were overlapping in nature. Many of the fields in some Forms and Registers were, as on date, redundant too.

An exercise was undertaken in the Ministry of Labour and Employment, Government of India, to do away with maintenance of multiple Forms and Registers and bring about commonality in the data/fields of such Registers/Forms, and reduce the number of Registers & Forms required to be maintained under various Central Acts, so as to promote ease of compliance of various labour laws and also reduce the cost of maintenance of such Registers/Forms.

In this regard, the Ministry of Labour and Employment, Govt. of India has notified **"Ease of compliance to maintain registers under various Labour Laws Rules, 2017"** on 21st February, 2017 which has in effect replaced 56 Registers/Forms by 5 Registers/Forms that shall now be required to be maintained under the new Rules.

These Rules are available on the website of the Ministry of Labour and Employment at the Link <http://labour.gov.in/whatsnew/ease-compliance-maintain-registers-under-various-labour-laws-rules-2017>.

2.0 After coming into force of these new Rules, only five Registers/Forms are required to be maintained under the Mines Rules, 1955. The salient points of amendments made in the Mines Rules, 1955, are briefly given hereunder:

- (i) The registers required to be maintained in Form B, Form C, Form D, Form E, Form F, Form G, Form H and Form I have been omitted.

- (ii) The Registers/Forms now required to be maintained (in lieu of the above-mentioned Registers/Forms) under the Mines Rules, 1955, shall now be maintained in the Forms specified in the schedule to the "Ease of compliance to maintain Registers under various Labour Laws Rules, 2017" which is summarized below:

Sl. No.	Forms earlier required to be maintained under Mines Rules, 1955	Corresponding new Forms under the "Ease of compliance to maintain registers for various Labour Laws Rules, 2017"
1	Form B	Form A
2	Form C, D & E	Form D
3	Form F	Form E
4	Form G & H	Form E
5	Form I	Form B

The Registers/Forms can be maintained either in electronic form or otherwise and shall be provided to the concerned Inspector when required.

If any Register is maintained in electronic form, then, layout and presentation of such register may be adjusted without changing the integrity, serial number and contents of the columns of the register, but not otherwise.

In this regard your attention is drawn to sub-rule (2) & (3) of Rule-2.

All concerned are requested to take necessary action to comply with the provisions of "Ease of compliance to maintain registers under various Labour Laws Rules, 2017".


Director General of Mines Safety



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Directorate General of Mines Safety



DGMS(Tech)(MAMID)Circular No. 04 of 2017

Dhanbad : 16/06 /2017

To

All Owner, Agent & Managers of Coal Mines

Subject : Providing Environmental Monitoring System in belowground coal mines.

Sir,

Of late there were incidences of fires in sealed off areas of underground coal mines which remained unnoticed till general body of air outside the area became contaminated with Methane, Carbon Monoxide, Hydrogen and other Hydrocarbons. In one such case the situation demanded withdrawal of persons from belowground workings and fighting of fire from surface by injecting/pouring Carbon Dioxide through boreholes, keeping main mechanical ventilator running at 25% of its normal water gauge. It was also inferred from the analysis of the air samples from the environment inside the sealed off area that series of explosions had taken place resulting increase of Hydrogen during distillation of coal. It is pertinent to note that any such hazardous situation could have caused disaster in the mine in case of firedamp or coal dust explosion, resulting huge loss of lives & properties.

In this regard your attention is drawn to the Recommendation of 7th National Conference on Safety in Mines wherein it was suggested to provide necessary facilities for continuous type monitoring of the environmental parameters in respect of combustible and toxic gases in belowground coal mine workings in gassy seam of third degree and other coal mines having active underground fire. Noticing increasing trend of incidences of fire in coal mines; 8th, 9th, 10th & 11th Conference on Safety in Mines carried forward the said Recommendation.

This Directorate, through DGMS (Tech) Circular No. 08 of 2012 dated 23.03.2012; expressed concern for not abiding by the above-mentioned recommendation.

While taking stock of the situation as regard to installation of Environmental Monitoring System in gassy seam of third degree and fiery coal seams, after a series of fire in coal mines, it was noted that progress made toward the recommendation was minimal. It was further revealed that had such continuous monitoring system been installed in

degree three coal seams/fiery coal seams, detection of fire in early stage could have been possible and preventive action could have been taken.

Therefore, all concerned are requested to initiate procurement of approved Environmental Monitoring System immediately for all belowground coal mine workings in third degree gassy seams & fiery coal seams.

Yours faithfully,


(P.K. Sarkar)

16/06/17
Director General of Mines Safety