सत्यमेव जयते

वार्षिक प्रतिवेदन
ANNUAL REPORT
2024

भारत सरकार

श्रम एवं रोजगार मंत्रालय

खान सुरक्षा महानिदेशालय

GOVERNMENT OF INDIA

MINISTRY OF LABOUR & EMPLOYMENT

DIRECTORATE GENERAL OF MINES SAFETY

सत्यमेव जयते

वार्षिक प्रतिवेदन
ANNUAL REPORT
2024

भारत सरकार
श्रम एवं रोजगार मंत्रालय
खान सुरक्षा महानिदेशालय

GOVERNMENT OF INDIA
MINISTRY OF LABOUR & EMPLOYMENT
DIRECTORATE GENERAL OF MINES SAFETY

FOREWORD

Mining industry all over the world is emerging into a new safety regime. Safety and health framework that endorsed safety management system approach to improve safety and health performance is rapidly gaining ground. A remarkable progress towards reduction in the rate off injuries in the mining industry has been achieved by shifting from prescriptive regulatory approach to a risk-based systems approach in many countries. Analysis of accidents in both coal & non-coal mines during last three decades shows more or less a static trend. This indicates the need for shifting from prescriptive regulatory system to self-regulatory system.

Looking ahead, we are determined to implement rigorous inspection systems and conduct thorough investigations of incidents and accidents towards effectiveness in preventive measures. Our unwavering objective of achieving "Zero Harm" continues as we navigate the challenges and opportunities presented by technological advancements in mining operations.

The accident statistics provided in this report exemplify our relentless pursuit of improvement. DGMS is devoted to it's commitment towards journey as inspector –cum-facilitator, offering vital support and resources to the mining industry, and ensuring that the safety of our workforce remains not just a priority, but a core value.

As we embark on another year, let us collectively reaffirm our commitment to health and safety. Together, let's drive our efforts to protect those who work tirelessly to contribute to our nation's building and to achieve our goal of "Vikshit Bharat". In unity, we can create a safer and healthier mining environment in India.

(Ujjwal Tah)
Director-General of Mines Safety

<u>खान सुरक्षा महानिदेशालय</u>

श्री उज्ज्वल ता
खान सुरक्षा महानिदेशक

श्री वीर प्रताप
खान सुरक्षा उपमहानिदेशक (मु.)

<u>प्रकाशन से संबंधित अधिकारी और कर्मचारीगण</u>

श्री मुरलीधर मिश्रा, खान सुरक्षा निदेशक (सोमा)
श्री के. ए. अप्पाला नायडू, खान सुरक्षा उपनिदेशक (सोमा)
श्री सदाशिव प्रसाद, आंकड़े प्रक्रमण सहायक
श्री पार्थसारथी दासगुप्ता, कार्यालय अधीक्षक
श्री गोपाल शरण सिन्हा, कार्यालय अधीक्षक
श्री राजेश प्रसाद, आशुलिपिक ग्रेड-।
श्री बापी मंडल, उ0 व0 लि0
श्री भगवान दास घांसी, एम.टी.एस.

C O N T E N T S

LIST OF APPENDICES

1. INTRODUCTION

Under the Constitution of India "Regulation of Labour and Safety in Mines and Oilfields" is a central subject (Entry 55 of the Seventh Schedule of Article 246). The matter is regulated by the Mines Act, 1952 and the Rules and Regulations framed thereunder. It extends to whole of India. These statutes are administered by Directorate-General of Mines Safety (DGMS) under the Union Ministry of Labour & Employment.

1.1 Historical Background

Although exploitation of minerals has been going on in the country from pre-Christian era, it was only towards the end of 19th Century that attempts were made by the state for regulation of employment and working conditions therein. Following the International Labour Conference in Berlin in 1890, the then Government of UK through the Secretary of State for India asked the Government of India to consider the desirability of undertaking legislation for inspection of mines in general and coal mines in particular and for regulation of employment therein of men, women and children. Accordingly in 1894, Mr. James Grundy was appointed as first ever Inspector of Mines in India within the organization of Geological Survey of India. Mr. Grundy recommended that provisions be made for the minimum age of employment; notice of opening and of accidents, first-aid, management and supervision etc. Major disasters at Kolar Gold Field in 1897 and at Khost Coal Mines, Baluchisthan (presently in Pakistan) in 1898 expedited finalization of the first Mines Act which was enacted on 22nd March, 1901. A Bureau of Mines Inspection was started in Calcutta on 7th January 1902 to administer the provisions of the Mines Act, 1901. The organization was renamed as Department of Mines and its office was shifted to Dhanbad in 1908. In 1960, the organization was renamed as Office of the Chief Inspector of Mines. Again in 1967 the name of the organization was changed to Directorate-General of Mines Safety (DGMS). In 1988 DGMS was declared a Scientific and Technological Organization.

Apart from administering the Mines Act and legislation framed thereunder, DGMS also administers certain allied legislation. A list of legislation administered by DGMS is given at Appendix-I.

1.2 Organizational Set-up of DGMS

Directorate-General of Mines Safety is a multi-disciplinary organization with Inspecting Officers from Mining, Mechanical and Electrical engineering and Occupational Health disciplines. Officers appointed to different technical posts in DGMS are selected by Union Public Service Commission, Government of India. They are required to have Degree in Mining or Mechanical or Electrical Engineering with ten years of experience of working in responsible capacity in mines or allied industry. Besides, officers of mining cadre possess First Class Mine Manager's(Un-Restricted) Certificate of Competency issued under the Coal Mines Regulations/Metalliferous Mines Regulations. The Occupational Health cadre is manned by qualified and experienced medical personnel.

The Directorate General of Mines Safety (DGMS), headquartered at Dhanbad, Jharkhand, functions under the leadership of the Director-General of Mines Safety. The Director-General is assisted at the headquarters by a team of specialist officers from various disciplines including mining, electrical and mechanical, occupational health, law, survey, statistics, administration, and accounts. The headquarters is also equipped with a technical library and an S&T laboratory, providing essential technical and scientific support to the organization.

In pursuit of the vision of *Digital India and ease of doing business, DGMS* promote e-Governance initiatives, the organization conceptualized the development of various software modules aimed at improving efficiency, transparency, and accountability. Among these, the modules for Approval System, Permission, Exemption & Relaxation System, National Safety Awards (Mines) System, and Accident Statistics have already been developed and made operational, ensuring transparent, faster and improved public service delivery.

Further, with the launch of the Shram Suvidha Unified Web Portal in November 2014, DGMS has enabled online registration of mines, web based inspection assignments and reports, and unified filing of annual returns by the registered mines. This initiative has significantly enhanced transparency, accountability, and ease of doing business in the mining sector. The Approval Policy has also been simplified and streamlined to make it more user-friendly and to further promote ease of doing business.

DGMS has successfully implemented Computer-Based Tests (CBT) for statutory competency examinations such as those for Managers, Overmen, Foremen, Surveyors, Sirdars, Mining Mates, Blasters, and Gas Testing under the Coal Mines Regulations, 2017, and the Metalliferous Mines Regulations, 1961.

DGMS has developed and strengthened its IT infrastructure to support various online services and digital initiatives. The organization's official website serves as a comprehensive platform for disseminating information, providing public services, and facilitating online interactions with stakeholders.

The field organization has a two-tier network of field offices. The area of jurisdiction of DGMS covering the entire country is divided into 8 zones, each under the charge of a Deputy Director-General of Mines Safety. There are four to six Regional offices under each zonal office. Each Region is under the charge of a Director of Mines Safety. There are in all 38 such Regional Offices. Each Zone, having inspecting officers of Mining, Electrical, Mechanical and Occupational Health disciplines.

Organization chart of DGMS is at Appendix-IIA & IIB. Table - 1 shows the discipline-wise strength of inspecting officers as on 01.01.2025. A statement showing posting of Group 'A' & 'B' officers in DGMS as on 31.12.2024 is given at Appendix-III.

TABLE :1	STRENGTH OF INSPECTING OFFICERS AND SANCTIONED POSTS AS ON 01.01.2025							
Designation	DISCIPLINE							
	MINING		ELECTRICAL		MECHANICAL		O.H.	
	S	P	S	P	S	P	S	P
DIRECTOR GENERAL	1	1	-	-	-	-	-	-
DY. DIRECTOR GENERAL	9	9	1	1	1	1	-	-
DIRECTOR	50	46	16	16	16	14	-	-
DY. DIRECTOR	99	52	34	30	33	10	5	0
ASSTT.DIRECTOR	-	-	-	-	-	-	4	2
TOTAL	**159**	**108**	**51**	**47**	**50**	**25**	**9**	**2**

S-Sanctioned P-In position

1.3 Role and Function of DGMS

Vision of DGMS

To attain risk and hazard-free conditions of work and welfare of persons employed in mines.

Mission of DGMS

To identify and reduce the risk of accidents and diseases in and around the mine through:

i. Development of suitable legislation, rules, regulations, standards, and guidelines;
ii. Adequate measures to ensure compliance and
iii. Awareness initiatives to inculcate safety and health culture amongst work-persons and stakeholders.

Functions of DGMS broadly include:

1. Inspection of mines
2. Investigation into -
   (a) accidents
   (b) dangerous occurrences - emergency response
   (c) complaints & other matters
3. (a) Grant of:
      (i) statutory permission, exemptions & relaxations
      (ii) approval of mine safety equipment, material & appliances
   (b) Interactions for the development of safety equipment, material, and safe work practices through workshops etc.
   (c) Development of Safety Legislation & Standards
   (d) Safety Information Dissemination
4. Conducting examinations for grant of competency certificates.
5. Safety promotional initiatives include:

   (a) Organization of -
      - Conference on Safety in Mines
      - National Safety Awards
      - Safety Weeks &
      - Safety awareness campaigns

   (b) Promoting –
      - safety education and awareness programmes
      - workers' participation in safety management through –
         - ✓ Workmen's inspector
         - ✓ Safety Committee
         - ✓ Tripartite reviews

1.4 Gazette Notification

No Gazette Notification was issued during the years 2024.

1.5 Measures to improve safety in mines

Since mining is beset with many inherent hazards, detailed precautions have been laid down in the Mines Act and the Rules and Regulations framed thereunder to guard against dangers in mines and it is the responsibility of the mine management to comply with the same. While the onus of providing for and ensuring safety in mines rests with the mine management, as clearly laid down under Section 18 of the Mines Act, 1952 as "The owner and agent of every mine shall each be responsible for making financial and other provisions and for taking other such steps as may be necessary for compliance with the provisions of this Act and regulations, rules, bye-laws and orders made thereunder."

The DGMS has the responsibility to see that the safety law is kept updated to absorb the technical advancements as well as to make the same comprehensive, practicable, and legally sound and also to carry out periodic inspections of mines to oversee compliance with safety laws. The Mines Act and the subordinate legislations framed thereunder are periodically updated for the purpose. Every accident involving a fatality is enquired into by an officer or a team of officers of DGMS. A few accidents involving serious bodily injury and most of the important dangerous occurrences are also investigated by DGMS Officers.

Action taken after inspections:

1. Pointing out contraventions
2. Withdrawal of permission
3. Issue of improvement notices
4. Prohibition of employment
5. Informal stoppages
6. Prosecution in the court of law

1.6 Inspections & Inquiries

All fatal accidents are required to be enquired into by DGMS. Apart from that, the officers also enquire into complaints, received from various sources, related to the safety and welfare of the persons connected with mining.

The following actions are taken after an inquiry to prevent reoccurrence of accidents:

After Inspection	After Inquiries
• Pointing out contraventions- Follow up for compliance; • Withdrawal of permission • Temporary stoppage of mine or part thereof • Issue of improvement notices • Prohibition of employment by issue of Prohibitory Orders, if there exists urgent and immediate danger;	• Issues of Guidelines and Technical Circulars • Modifications in Method, SOP/COP • Management Action: Reconciliation, Disciplinary action. • Prosecution in the court of law. • Cancellation of Statutory certificates

The number of inspections and enquiries conducted by DGMS officers during the year 2024 is shown below.

Table : 3	**NUMBER OF INSPECTIONS AND ENQUIRIES MADE DURING THE YEAR 2024**				
Coal Mines		**Metal Mines**		**Oil Mines**	
Inspections	**Enquiries**	**Inspections**	**Enquiries**	**Inspections**	**Enquiries**
3315	963	4533	562	537	32

1.7 Improvement Notices & Prohibitory Orders

During the course of the inspection of mine, if the things or practice connected with mine for which no express provision is made under the statute is found dangerous to human life or safety of work person(s) employed, improvement notice is issued to management of the mine requiring the same to be rectified within a stipulated time. During the inspection of a mine, if it is found that there is urgent and immediate danger to the life or safety of the person(s) employed (or) the improvement notice issued has not complied within the stipulated/extended period, an order is issued prohibiting employment till such time danger is not rectified.

1.7.1 Coal Mines

123 (One hundred and twenty-three) Improvement Notices under various provisions of the Mines Act, 1952 and allied statute were issued as a result of inspections and inquiries of the mines during the year 2024. These Improvement Notices were issued for various types of serious defects, details of which are given in Table 4 below:

Table:4	IMPROVEMENT NOTICES ISSUED UNDER SECTION 22(1) AND 22A(1) OF THE MINES ACT, 1952 IN COAL MINES DURING 2024	
Sl. No	**Nature of Defects**	**No of Cases**
1.	High benches in opencast workings	29
2.	Inadequate support	1
3.	Poor ventilation	4
4.	Inadequate coal dust suppression	6
5.	Isolation Stopping	5
6.	Improper/non-provision of traveling road	2
7.	Danger of Inundation	2
8.	Unstable working	1
9.	Lag of stowing	0
10.	Accumulation of gases	0
11.	Defective Electrical installation	15
12.	Inadequate earth leakage protection	0
13.	Defective wining rope	1
14.	Other defects in winding installation	3
15.	Defective shot-firing practices	2
16.	Others	52
	Total	**123**

27 (twenty-seven) Prohibitory orders under section 22(3), 22A(2) and 22(1A) of the Mines Act, 1952 were issued as a result of inspections and inquiries of the mines during the year 2024. These orders were issued for various types of dangerous conditions prevailing at the mines details of which are given in Table-5:

Table:5	PROHIBITORY ORDERS ISSUED UNDER SECTION 22(3), 22A(2) and 22A(1) OF THE MINES ACT, 1952 IN COAL MINES DURING 2024	
Sl. No	**Nature of Defects**	**No of Cases**
1.	High benches in opencast workings	14
2.	Inadequate support	0
3.	Poor ventilation	2
4.	Inadequate coal dust suppression	0
5.	Isolation Stopping	0
6.	Improper/non-provision of traveling road	2
7.	Danger of Inundation	0
8.	Unstable working	0
9.	Lag of stowing	1
10.	Accumulation of gases	0
11.	Defective Electrical installation	3
12.	Inadequate earth leakage protection	0
13.	Defective wining rope	0
14.	Other defects in winding installation	0
15.	Defective shot-firing practices	0
16.	Others	5
	Total	**27**

1.7.2 Metalliferous Mines

In metalliferous mines inadequate benching and unstable slope in opencast working and non-appointment of managers and supervisory officials in the mines were the main reasons for which improvements notices and prohibitory orders were issued. Notices issued under Section 22(1) & 22A(1) of the Mines Act, 1952 during the year 2024 were 116 (One hundred sixteen). Prohibitory orders under section 22(1A), 22A(2) and 22(3) issued in Metalliferous Mines during the year 2024 were 467 (Four hundred and sixty-seven) details of which are given in Table 6 & 7 respectively:

Table:6	**IMPROVEMENT NOTICES ISSUED UNDER SECTION 22(1) and 22A(1) OF THE MINES ACT, 1952 IN METALLIFEROUS MINES DURING 2024**	
Sl. No.	**Nature of Defects**	**No of Cases**
1.	Non-appointment of qualified manager and supervisory officials	22
2.	Inadequate benching and sloping in opencast working	42
3.	Miscellaneous	52
Total		**116**

Table:7	**PROHIBITORY ORDERS ISSUED UNDER SECTION 22(3) 22A(2) & 22(1A) OF THE MINES ACT, 1952 IN METALLIFEROUS MINES DURING 2024**	
Sl. No.	**Nature of Defects**	**No of Cases**
1.	Non-appointment of qualified manager and supervisory officials	193
2.	Inadequate benching and sloping in opencast working	136
3.	Miscellaneous	138
Total		**467**

1.7.3 Oil Mines

No notice was issued under Section 22(1) & 22A(1) of the Mines Act, 1952 during the year 2024. 13 (Thirteen) Prohibitory orders under section 22(1A), 22A(2) and 22(3) issued in Oil Mines during the year 2024. Details of the improvement notice and prohibitory orders issued during 2024 are given in table: 6A & 7A respectively.

Table:6A	**IMPROVEMENT NOTICES ISSUED UNDER SECTION 22(1) and 22A(1) OF THE MINES ACT, 1952 IN OIL MINES DURING 2024**	
Sl. No	**Nature of Defects**	**No of Cases**
1.	Non-appointment of qualified manager and supervisory officials	-
2.	Others	-
Total		-

Table:7A	**PROHIBITORY ORDERS ISSUED UNDER SECTION 22(3) 22A(2) & 22(1A) OF THE MINES ACT, 1952 IN OIL MINES DURING 2024**	
Sl. No	**Nature of Defects**	**No of Cases**
1.	Non-appointment of qualified manager and supervisory officials	13
2.	Others	0
Total		**13**

1.8 Permissions, Relaxations and Exemptions

1.8.1 Coal mines

525 (five hundred twenty-five) permissions/exemptions and relaxations were granted in coal mines during the year 2024. Details of such cases are given in table:8.

TABLE: 8	PERMISSIONS, RELAXATIONS & EXEMPTIONS GRANTED IN COAL MINES DURING 2024	
Sl. No.	**Particulars of Permissions, Relaxations & Exemptions**	**No. of cases**
1.	Extraction of coal by methods other than board & pillar beneath areas free from surface features	11
2.	Extraction of coal by methods other than Board & Pillar below surface features	10
3.	Extraction of coal by Board & Pillar method beneath areas free from surface features	46
4.	Extraction of coal by Board & Pillar method beneath surface features	33
5.	Development below surface features including development in contiguous seams/sections	36
6.	Blasting coal off the solid	24
7.	Development within 60m. of waterlogged workings	3
8.	Workings within 7.5m. / Adjustment of mine boundaries	6
9.	Exemptions from different provisions of regulations	46
10.	Others	310
	Total	**525**

1.8.2 Metalliferous Mines

4915 (four thousand nine hundred fifteen) permissions/exemptions and relaxations were granted in metalliferous mines during the year 2024. Details of such cases are given in table:9.

TABLE: 9	PERMISSIONS, RELAXATIONS & EXEMPTIONS GRANTED IN METALLIFEROUS MINES DURING 2024	
Sl. No.	**Particulars of Permissions, Relaxations & Exemptions**	**No. of cases**
1.	Stopping of Blocks	97
2.	Use of HEMM with deep hole blasting	1005
3.	Use of ANFO and/or more than one explosive in a shot hole	34
4.	Appointment of manager for more than one mine /permit manager	2957
5.	Appointment of surveyor for more than one mine	38
6.	Others	784
	Total	**4915**

1.8.3 Oil Mines

06 (six) permissions/exemptions and relaxations were granted in Oil mines during the year 2024. Details of such cases are given in table:10.

TABLE: 10	PERMISSIONS, RELAXATIONS & EXEMPTIONS GRANTED IN OIL MINES DURING 2024	
SL. NO.	**Particulars of Permissions, Relaxations & Exemptions**	**No. of cases**
1.	Well head installations	0
2.	Laying of oil pipe line	0
3.	Notices under Regulation 51 for GGS/EPS etc.	0
4.	Others	6
	Total	**6**

1.9 Prosecutions

Total 30 (Thirty) prosecutions were instituted during the year 2024. In respect of coal mines, Seven (07) and non-coal mines, twenty-three (23) prosecutions were launched during 2024. Contraventions of provisions of statute for which these prosecutions were instituted are given in tables: 11 & 12.

Details of prosecution cases instituted and their status during the year 2024 is given below:

PROSECUTIONS INSTITUTED DURING 2024				
Prosecution	**Coal**	**Metal**	**Oil**	**Total**
Launched	07	23	-	30
Disposed off	02	24	-	26
Pending*	43	96	01	140

* The figure of pending cases has been counted from the year 2000-2024.

TABLE:11	**PROSECUTIONS INSTITUTED IN RESPECT OF COAL MINES DURING 2024**	
Sl. No.	**CONTRAVENTION**	**NO. OF CASES**
1.	Contraventions leading to accidents	5
2.	Non-submission or submission of incorrect plans, returns, notices etc.	0
3.	Non-appointment of qualified persons as senior supervisory officials	0
4.	Contraventions under Indian Electricity Act or Rules	1
5.	Other violation of serious nature	1
6.	Miscellaneous violations	0
	TOTAL	7

TABLE:12	**PROSECUTIONS INSTITUTED IN RESPECT OF NON-COAL MINES DURING 2024**	
Sl. No.	**CONTRAVENTION**	**NO. OF CASES**
1.	Contravention leading to accidents	23
2.	Contravention of orders under sections 22(1A), 22(3), Reg. 108 etc.	0
3.	Non-appointment of qualified persons as senior supervisory officials	0
4.	Non-appointment of qualified persons as subordinate supervisory officials	0
5.	Non-provisions of protective equipment	0
6.	Other miscellaneous contraventions	0
	TOTAL	**23**

2.0 Coal Mines

2.1 General

Number of operating coal mines during 2024 was 500. Company- wise number of coal mines and production is given in table: 13.

TABLE: 13	Number of Mines during 2024*				Production (in million tonnes)
COMPANY	Belowground	Opencast	Both	Total	
Coal India Limited	165	172	38	375	821.92
Singareni Collieries Company Limited	27	23	2	52	65.48
Others	29	78	8	115	234.36
TOTAL	**221**	**273**	**48**	**542**	**1121.76**

* Provisional

Table-14 shows the number of belowground coal mines having gassy seams of different degrees.

TABLE: 14	BELOWGROUND COAL MINES HAVING GASSY SEAMS OF DIFFERENT DEGREES	
Degree of gassiness	Number of Mines	
	2023	2024*
I only	138	135
II only	69	65
III only	14	14
I & II	2	0
II & III	0	0
TOTAL	**223**	**214**

* Data for the year 2024 is provisional.

During the year total numbers of working mines was 542 in 2024. Output of coal increased to 1121 million tonnes in 2024. Coal mines under M/s Coal India Limited contributed 822(approx..) million tonnes of coal during the year 2024. Average daily employment in mines is slightly decreased from 283736 in 2023 to 281739 in 2024. The output per manshift was increased from 8.89 in 2023 to 9.51 during 2024. Trend in average daily employment and output per man shift in coal mines is given Table-15.

TABLE: 15	PLACEWISE DISTRIBUTION OF AVERAGE DAILY EMPLOYMENT AND OUTPUT AND PRODUCTIVITY IN COAL MINES							
Year	Belowground		Opencast		Above Ground	Total		Output per manshift
	Employment (in '000 number)	Output (in'000 tonnes)	Employment (in '000 number)	Output (in'000 tonnes)	Employment (in '000 number)	Employment (in '000 number)	Output (in'000 tonnes)	
1951	178	30199	36	4784	138	352	34983	0.35
1961	230	44887	60	10822	121	411	55709	0.45
1971	228	58552	43	17090	111	382	75642	0.67
1981	302	76205	55	51120	156	513	127325	0.81
1991	316	70731	67	167206	171	554	237757	1.40
2001	239	64134	69	277379	130	438	341513	2.51
2011	178	69032	86	538240	102	366	607272	5.15
2021	90	31340	129	829962	59	277	861302	7.30
2022	85	33100	134	915316	61	281	948417	8.04
2023	80	32762	148	1015955	56	284	1048717	8.89
2024	75	30310	147	1091576	60	282	1121886	9.51

Note : Figures for the years 2024 are provisional.

2.2 Accidents

2.2.1 Major Accidents

One major accident took place during the year 2024, the details of which are given below:

- Name of Mine : Gangaramchak-Bhadulia Coal Mine
- Owner : West Bengal Power Development Corporation Ltd.
- Date of Accident : 07.10.2024
- Time : 10:32 AM
- Number of Persons : Killed - 08, Injured – 01

- Cause:
  While unloading of explosives from an explosive van (loaded with booster explosives, electric and electronic detonators, and shock tubes) parked near the site scheduled for blasting at an overburden bench of an opencast coal mine, and primer preparation, carrying them in bunches to the shot holes, and lowering of primer charge into a hole were going on simultaneously, suddenly, a strong blast occurred in the explosive van, resulting in shock waves, air overpressure and ejection of splinters from the damaged aluminum sheeting of the van, which in turn initiated to blast all the primer charges, to which all eight persons engaged in the above operations died on the spot; and one of the three persons present nearby received serious bodily injuries and two received reportable injuries.

2.2.2 Accident scenario

During the year 2024 number of fatal accidents and fatalities has remained almost same as compared to the year 2023. During the years 2024 and 2023 number of fatal accidents was 38 whereas the number of fatalities during 2024 and 2023 were 49 and 41 respectively.

Table 16 indicates the trend of accidents and rates of fatalities in coal mines.

TABLE: 16	TREND IN FATAL ACCIDENTS AND FATALITY RATES PER 1000 PERSONS EMPLOYED IN COAL MINES (10 YEARLY AVERAGE)			
Year	Av. No. of accidents	Accident rate	Av. No. of fatality	Fatality rate
1901-1910	74	0.77	92	0.94
1911-1920	138	0.94	176	1.29
1921-1930	174	0.99	219	1.24
1931-1940	172	0.98	228	1.33
1941-1950	236	0.87	273	1.01
1951-1960	222	0.61	295	0.82
1961-1970	202	0.48	260	0.62
1971-1980	187	0.46	264	0.55
1981-1990	162	0.30	186	0.35
1991-2000	140	0.27	170	0.33
2001-2010	87	0.22	108	0.27
2011-2020	61	0.17	68	0.19
2021-2024*	36	0.11	42	0.12

* Provisional

Table 17 gives year-wise fatal accidents, fatalities, and death rates in coal mines.

TABLE: 17	TREND IN FATAL ACCIDENTS AND DEATH RATES IN COAL MINES (YEAR-WISE)				
Year	No. of fatal accidents	No. of persons fatalities	Death Rate		
			Per '000 persons employed	Per 100,000 manshifts worked	Per million tonnes output
1951	278	319	0.91	0.32	9.12
1961	222	268	0.65	0.22	4.81
1971	199	231	0.60	0.21	3.05
1981	165	184	0.36	0.12	1.45
1991	138	143	0.26	0.08	0.60
2001	105	141	0.32	0.10	0.41
2011	65	67	0.18	0.06	0.11
2021	43	51	0.15	0.04	0.08
2022	24	28	0.08	0.02	0.04
2023	38	41	0.12	0.03	0.06
2024*	38	49	0.14	0.04	0.07

* Provisional

In the year 2024, number of serious accidents has increased as compared to that of the year 2023 but the number of persons seriously injured has decreased slightly. Number of serious accidents and number of persons injured during 2024 were 119 and 126 as compared to 117 and 130 respectively during the year 2023. As far as the serious accident rate is concerned, it has also decreased during the year 2024. The serious injury rate per thousand persons employed in 2024 was 0.37 as compared to 0.38 in 2023. The rate per lakh manshift worked has remained same i.e. 0.12 in 2024 and 2023.The rate per million tonnes output decreased to 0.19 in 2024 from 0.20 in 2023.Table 18 gives year-wise number of serious accidents, no. of persons injured and serious injury rate.

TABLE: 18	TREND IN SERIOUS ACCIDENTS AND SERIOUS INJURY RATES IN COAL MINES (YEAR-WISE)				
Year	No. of serious accidents	No. of persons seriously injured	Serious injury rates		
			Per '000 persons employed	Per 100,000 manshifts worked	Per million tonnes output
2011	533	556	1.52	0.47	0.92
2012	536	548	1.53	0.47	0.89
2013	456	468	1.31	0.41	0.74
2014	379	394	1.11	0.35	0.61
2015	302	316	0.93	0.28	0.49
2016	269	279	0.82	0.25	0.43
2017	266	272	0.80	0.24	0.42
2018	265	279	0.82	0.25	0.43
2019	193	204	0.60	0.18	0.32
2020	117	138	0.41	0.12	0.21
2021	186	193	0.57	0.17	0.30
2022	181	190	0.56	0.17	0.29
2023	117	130	0.38	0.12	0.20
2024*	119	126	0.37	0.12	0.19

* Provisional

Note : No. of persons seriously injured during fatal accidents are also considered for computation of no. of persons seriously injured & serious injury rates.

2.2.3 Analysis of accidents

All fatal accidents and major serious accidents were inquired into by officers of DGMS. An analysis of accidents enumerated in the following paragraphs is based on the findings of such enquiry and information submitted by the mine management.

2.2.3.A By place

Total 38 fatal accidents involving 49 fatalities occurred during the year 2024 as compared to 38 fatal accidents and 41 fatalities during the year 2023. Overall fatality rate in 2024 has increased to 0.14 from 0.12 in the year 2023. Overall serious injury rate during the year 2024 has decreased to 0.37 from 0.38 in 2023. 9(24%) fatal accidents occurred in belowground workings with fatality rate of 0.07, 21(55%) in opencast workings with fatality rate of 0.34 and 8(21%) in aboveground with fatality rate of 0.10 during the year 2024. Table 19 gives the trend of fatal and serious accidents with fatality rate in different working places.

TABLE: 19	TREND IN FATAL & SERIOUS ACCIDENTS AND DEATH & SERIOUS INJURY RATES (PLACEWISE) - COAL MINES PER THOUSAND PERSONS EMPLOYED							
Year	Fatal accidents & death rates				Serious accidents & ser. injury rates			
	Below ground	Open cast	Above ground	Overall	Below ground	Open cast	Above ground	Overall
2011	23 (0.13)	29 (0.35)	13 (0.13)	65 (0.18)	379 (2.23)	73 (0.91)	81 (0.79)	533 (1.52)
2012	25 (0.16)	37 (0.43)	17 (0.17)	79 (0.23)	374 (2.22)	61 (0.74)	101 (1.03)	536 (1.53)
2013	19 (0.14)	40 (0.46)	18 (0.17)	77 (0.23)	336 (2.04)	56 (0.67)	64 (0.66)	456 (1.31)
2014	20 (0.13)	31 (0.35)	8 (0.08)	59 (0.17)	250 (1.60)	64 (0.70)	65 (0.67)	379 (1.11)
2015	21 (0.13)	25 (0.29)	8 (0.09)	54 (0.16)	185 (1.19)	67 (0.82)	50 (0.58)	302 (0.93)
2016	26 (0.18)	30 (0.18)	11 (0.14)	67 (0.28)	178 (1.14)	47 (0.55)	44 (0.53)	269 (0.82)
2017	18 (0.13)	29 (0.32)	9 (0.12)	56 (0.18)	190 (1.23)	32 (0.36)	44 (0.49)	266 (0.80)
2018	12 (0.12)	29 (0.36)	8 (0.12)	49 (0.18)	174 (1.12)	43 (0.51)	48 (0.60)	265 (0.82)
2019	19 (0.13)	22 (0.28)	10 (0.11)	51 (0.16)	127 (0.81)	30 (0.38)	36 (0.45)	193 (0.60)
2020	15 (0.10)	24 (0.31)	9 (0.10)	48 (0.16)	68 (0.47)	21 (0.38)	28 (0.32)	117 (0.41)
2021	16 (0.13)	21 (0.26)	6 (0.08)	43 (0.15)	108 (0.70)	32 (0.38)	46 (0.52)	186 (0.57)
2022	9 (0.08)	11 (0.13)	4 (0.04)	24 (0.08)	94 (0.63)	44 (0.53)	43 (0.47)	181 (0.56)
2023	8 (0.05)	24 (0.31)	6 (0.07)	38 (0.12)	58 (0.39)	31 (0.42)	28 (0.33)	117 (0.38)
2024*	9 (0.07)	21 (0.34)	8 (0.10)	38 (0.14)	63 (0.40)	25 (0.35)	31 (0.34)	119 (0.37)

* Provisional

Note: i) Figures in bracket indicate death/injury rate.

ii) No. of persons seriously injured during fatal accidents are also considered for computation of no. of persons seriously injured & serious injury rates.

2.2.3.B By cause

Tables 20 & 21 give the trend in fatal and serious accidents in coal mines due to different causes during the year 2024 followed by graphical representation. As can be seen 12(31%) of fatal accidents were caused by transportation machinery (other than winding), 9(24%) due to falls other than fall of ground, 7(18%) due to machinery other than transportation machinery, 6(16%) due to ground movement,2(5%) due to Explosives and 1(3%) each in Electricity and Other causes. 119 serious accidents occurred during the year 2024 out of which 45(38%) were caused by falls other than falls of ground.

TABLE:20	TREND IN FATAL ACCIDENTS DUE TO DIFFERENT CAUSES IN COAL MINES				
Cause	**2020**	**2021**	**2022**	**2023**	**2024***
Ground movement	8 (8)	10(15)	7 (11)	5 (5)	6 (8)
Winding in shafts	-	-	-	1 (1)	-
Transportation machinery (other than winding)	17 (18)	14 (17)	5 (5)	13 (16)	12 (12)
Machinery other than transportation machinery	7 (7)	4 (4)	3 (3)	6 (6)	7 (7)
Explosive	3 (6)	2 (2)	-	-	2 (9)
Electricity	1 (1)	3 (3)	1 (1)	3 (3)	1 (1)
Gas, Dust etc.	-	-	2 (2)	2 (2)	-
Falls other than fall of ground	6 (6)	6 (6)	5 (5)	6 (6)	9 (11)
Other causes	6 (7)	4 (4)	1 (1)	2 (2)	1 (1)
TOTAL	**48 (53)**	**43 (51)**	**24 (28)**	**38 (41)**	**38 (49)**

* Provisional
Note: Figures in parentheses denote the number of persons killed.

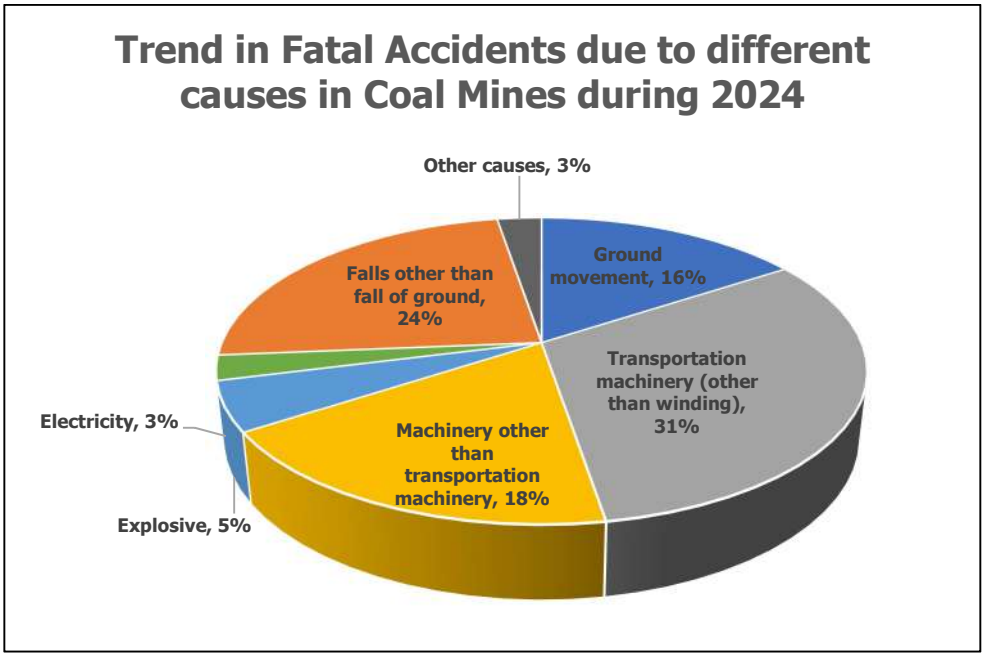


TABLE:20A	TREND IN FATAL ACCIDENTS IN DIFFERENT PLACES OF COAL MINES				
Place	**2020**	**2021**	**2022**	**2023**	**2024***
Belowground	15 (16)	16 (21)	9 (12)	8 (8)	9 (10)
Opencast	24 (28)	21 (23)	11 (12)	24 (27)	21 (29)
Aboveground	9 (9)	6 (7)	4 (4)	6 (6)	8 (10)
Total	**48 (53)**	**43 (51)**	**24 (28)**	**38 (41)**	**38 (49)**

* Provisional
Note: Figures in parentheses denote the number of persons killed.

TABLE: 21	TREND IN SERIOUS ACCIDENTS DUE TO DIFFERENT CAUSES IN COAL MINES				
Cause	**2020**	**2021**	**2022**	**2023**	**2024***
Ground movement	9 (13)	9 (11)	9 (12)	5 (7)	9 (9)
Winding in shafts	-	-	1 (1)	-	1 (2)
Transportation machinery (other than winding)	21 (30)	29 (30)	28 (30)	18 (23)	19 (24)
Machinery other than transportation machinery	11 (11)	22 (23)	22 (22)	11 (11)	11 (11)
Explosive	1 (7)	1 (1)	2 (4)	1 (2)	1 (2)
Electricity	5 (6)	-	-	1 (1)	1 (1)
Gas, Dust etc.	-	-	-	-	-
Falls other than fall of ground	55 (56)	91 (93)	73 (75)	47 (47)	45 (45)
Other causes	15 (15)	34 (35)	46 (46)	34 (39)	32 (32)
TOTAL	**117 (138)**	**186 (193)**	**181 (190)**	**117 (130)**	**119 (126)**

* Provisional

Note: Figures in parentheses denote the number of persons seriously injured and it includes persons seriously injured during fatal accidents also.

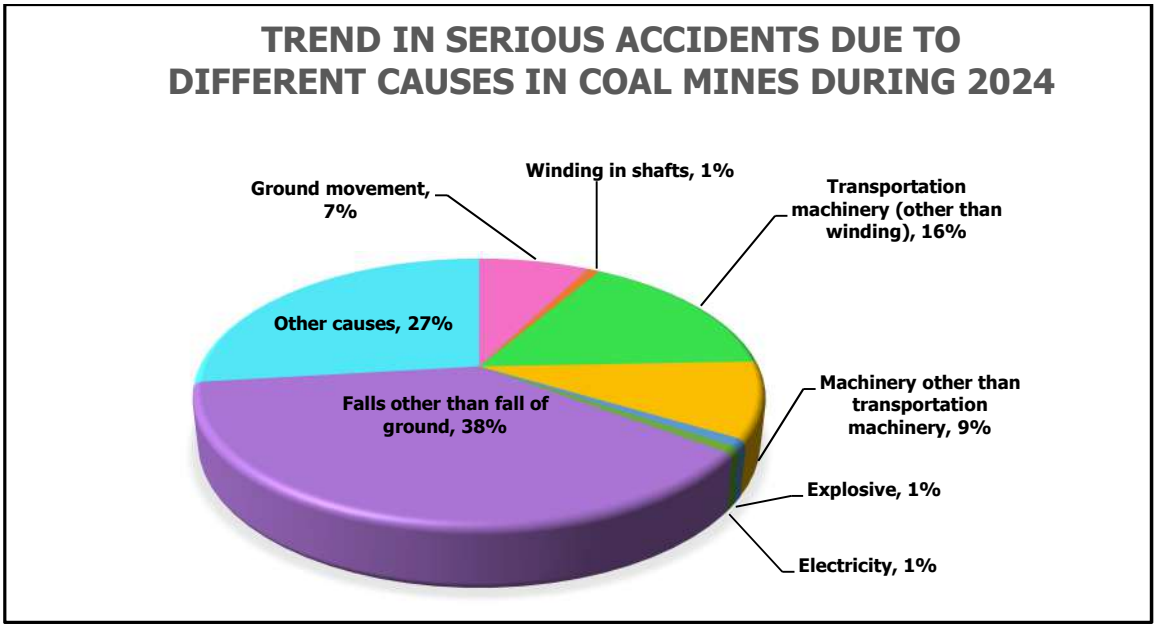


TABLE: 21A	TREND IN SERIOUS ACCIDENTS DUE TO DIFFERENT PLACES IN COAL MINES				
Place	**2020**	**2021**	**2022**	**2023**	**2024***
Belowground	68 (75)	108 (111)	94 (100)	58 (62)	63 (64)
Opencast	21 (34)	32 (34)	44 (47)	31 (38)	25 (31)
Aboveground	28 (29)	46 (48)	43 (43)	28 (30)	31 (31)
Total	**117 (138)**	**186 (193**	**181 (190)**	**117 (130)**	**119 (126)**

* Provisional

Note: Figures in parentheses denote the number of persons seriously injured and it includes persons seriously injured during fatal accidents also.

2.2.3.B.1 Ground Movement

During the year 2024, ground movement accounted for 6 (16%) fatal accidents and 9 (8%) serious accidents. Further break-up of fatal accidents due to ground movement is given in table 22.

TABLE: 22	FATAL ACCIDENTS DUE TO GROUND MOVEMENTS IN COAL MINES DURING THE YEAR 2024*		
Cause	**No. of accidents**	**Persons killed**	**Persons seriously inj.**
1.Fall of roof	**2**	**3**	-
2. Fall of side			
(a) belowground	1	1	-
(b) opencast	1	2	-
Sub-Total	**2**	**3**	**-**
3. Others			
(a) bump	1	1	-
(b) air blast	-	-	-
(c) landslide	1	1	-
(d) collapse of pillar	-	-	-
(e) overhang	-	-	**-**
Sub-Total	**2**	**2**	
Grand Total	**6**	**8**	**-**

* Provisional

2.2.3.B.2 Roof fall

Strata control is a major problem affecting safety and productivity in belowground mines. Experience of the past clearly brings out that roof fall is one of the predominant causes of fatalities in belowground coal mines and that trend continues even today. There were 06 accidents due to ground movement involving 08 fatalities with no serious injuries during the year 2024, out of which 02 accident was due to fall of roof and 01 accidents was due to fall of side (See Table 23). One(01) accident due to fall of sides in shaft. Three(03) accidents occurred due to Roof fall and side fall accidents) accounted for approx. 8% of all fatal accidents in coal mines and it contributed 33% of all fatal accidents in belowground operations. Further critical analysis of roof fall accidents for the last five years 2020 to 2024 revealed the following:

Table – 23 : Details of Roof fall/Side fall accidents during the year 2024

Date of accident	Name of the mine	Killed	Seriously injured	Brief cause	Cause description
10.05.2024	Parasea Colliery	1	0	Collapse of shaft/fall of shaft sides	While, a trammer was coming out from the cage pushing an empty coal tub at the pit-bottom of a belowground coal mine, stone pieces having size 37 cm X 15 cm X 15 cm, 25 cm X 10cm X 10cm fallen from sides of shaft over protective roofing and cage canopy, got broken into pieces and hit on the head and back of neck of the trammer inflicting serious bodily injuries to him, due to which he succumbed instantly.

Date of accident	Name of the mine	Killed	Seriously injured	Brief cause	Cause description
06.10.2024 (Turned Fatal on 27.11.2024)	Orient Colliery Mine	1	0	Fall of Roof	While dressing roof at immediate out-bye junction of a development gallery after blasting in an belowground coal mine, a block of shaly coal measuring about 0.9m x 0.6m x 0.15m lying between two roof bolts, suddenly detached from height of 2.6m and hit the chest of dresser after slipping along dressing rod, subsequently dresser fell down on his back on blasted coal inflicting serious internal bodily injuries to which he succumbed after undergoing treatment for 52 days at hospital.
04.12.2024	Jhiria UG Mine	2	0	Fall of Roof	While two workmen were engaged for dressing of a newly blasted roof at gallery junction in depillaring panel of an belowground coal mine, one of them fell down during dressing of roof and the other attempted to rescue him, suddenly a lump/stone measuring 1.4m x 1.1m x 0.1m size parted from the roof from a height of 3.05m and fell over them inflicting serious bodily injury to both of them to which they succumbed during treatment at the hospital.

I. **Physical and Working Condition factors-**

1. **Method of work:** Accident mainly occurred in Depillaring districts. 67% in caving districts. 33% in Board & Pillar development. No accident was recorded in Longwall Development.
2. **Height of working**: 33% of the fatal accidents occurred in gallery height upto 3m, and remaining 67% were reported in height upto 3m –5m.
3. **Width of gallery**: 33% of the fatal accidents occurred in width of galleries between 4.01 to 4.5 & above and 20% each in 4.51 and above 67%.
4. **Distance from face**: 33% of the accidents occurred within 5m of the working face and rest 67% occurred at other places.
5. **Type of support:** 67% of the fatal accidents occurred in areas supported by roof bolts, 33% in area supported by others. Steel supports, especially roof bolts, are more stable if they are fixed properly and intime.
6. **Adequacy of support**: Accident analysis revealed that in 67% of cases supports provided was inadequate, which means sufficient number of supports were not provided before engaging persons at work and majority of the accidents could have been averted had proper supports been provided before engaging the persons at work and front-line supervisors been attentive for providing adequate supports. It also reveals that in 33% cases accident occurred although adequate support was provided.

7. **Operation at the time of accident**: 67% of the fatal accidents occurred during Dressing and 33% while tramming. Thus 67% of the accidents occurred during primary job of face preparation. This can be avoided by adequately training the face workers for paying more attention towards identification of bad roof and testing for its weakness and by providing temporary supports before erecting permanent support. 33% of the fatal accidents occurred due to other activities.
8. **Time elapsed after blasting**:67% of the roof fall accidents occurred within 50 minutes of blasting operation which correlates with the operation at the time of accident as mentioned above. This also means that sufficient time was not allowed for the roof to settle before engaging persons. The other 33% was due to shaft sides.

II. Geological factors–

1. **Thickness of seam**: 33% each of the fatal accidents occurred in coal seam having thickness upto 6.01-9.0m, 33% in 9.01 and above and the rest is from shaft sides.
2. **Depth of cover**:33% of the fatal accidents accounted in depth of cover 101m-200m, 67% each between 201 to 300m.
3. **Thickness of fall**:67% of the fatal accidents occurred having thickness of fallen strata varying between 0 to 0.15m and 33% beteween0.31 to 1.0.
4. Fall of roof was mainly due to geological reasons such as presence of slicken sides, hidden slip planes, or due to weathering of strata etc. which could have been effectively controlled had adequate and timely supports been provided.
5. **Nature of fallen strata**: 67% of the fatal accidents occurred due to fall of coal and shale where as 33% was due to fall of. It indicates that practically all types of roof are likely to fall in absence of adequate supports.

III. Personal factors–

1. **Designation**:33% each of the persons involved in roof fall accidents were Dresser, 33% Support Personnel and 33%involved subordinate supervisory staff. Mainly face workers were involved in the accidents as they are first to approach the face and stay beneath the green roof areas for longer duration.
2. **Age**: In 50% of the total persons involved were in the age group of 51-55 years, 25% between 41-45 years, 25% between age group 36-40 years.
3. **Shift of working**: 33% of the fatal accidents took place in 1st shift, 33% each in 2nd and 3rd shift.
4. **Hours at work**: 33% each of the roof fall accidents occurred during 04.01-5.00 hours, 6.01-7.00 hours and 7.01-8.00 hours.

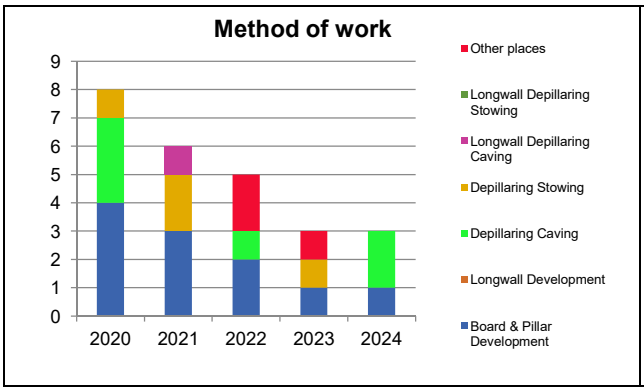
IV. Management factors–

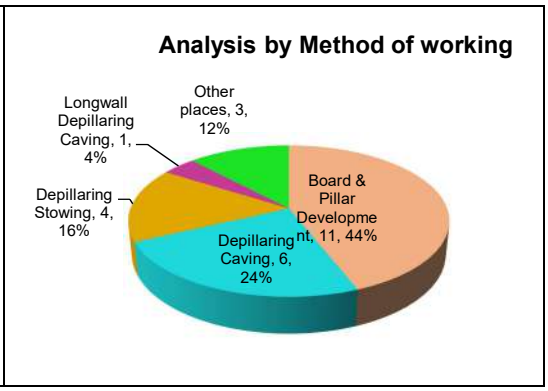
1. **Responsibility**: 67% of the fatal accidents were caused due to fault of management and Subordinate Supervisory Staff; 33% of the fatal accidents due to fault of Management, Subordinate Supervisory Staff & deceased.
2. **Company**: Company-wise analysis indicates that 100% of roof fall accident occurred in CIL whereas CIL subsidiary-wise each 33% of accidents occurred in ECL, SECL, and NCL.

Detailed statistical analysis of roof fall accidents that occurred during last 5 years are given in tabular as well as graphically in the following tables:

3. Distribution of fatal roof fall accidents by method of work

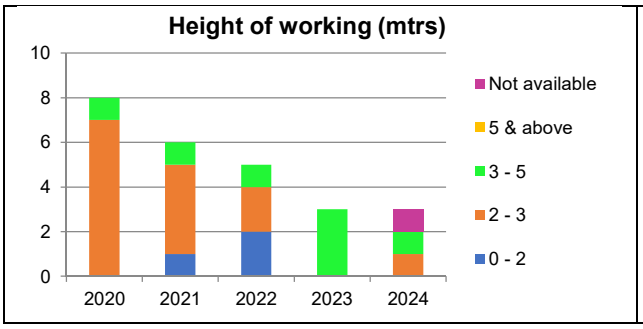
Method of work	Number of accidents											
	2020	%	2021	%	2022	%	2023	%	2024	%	Total	%
Board & Pillar Development	4	50.00	3	50.00	2	40.00	1	33.33	1	33.33	11	44.00
Longwall Development	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Depillaring												
Caving	3	37.50	0	0.00	1	20.00	0	0.00	2	66.67	6	24.00
Stowing	1	12.50	2	33.33	0	0.00	1	33.33	0	0.00	4	16.00
Total Depillaring	4	50.00	2	33.33	1	20.00	1	33.33	2	66.67	10	40.00
Longwall Depillaring												
Caving	0	0.00	1	16.67	0	0.00	0	0.00	0	0.00	1	4.00
Stowing	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Total Longwall Depillaring	0	0.00	1	16.67	0	0.00	0	0.00	0	0.00	1	4.00
Other Places	0	0.00	0	0.00	2	40.00	1	33.33	0	0.00	3	12.00
Total	**8**	**100**	**6**	**100**	**5**	**100**	**3**	**100**	**3**	**100**	**25**	**100**

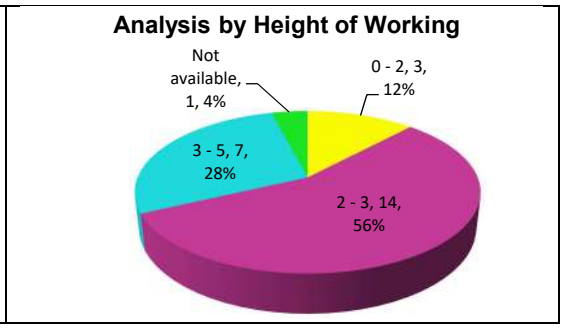




4. Distribution of fatal roof fall accidents by height of working

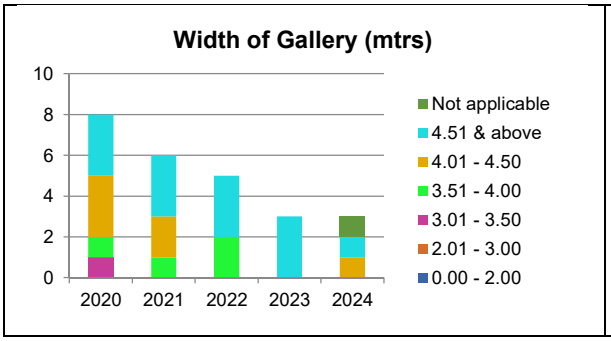
Height of working (metres)	Number of accidents											
	2020	%	2021	%	2022	%	2023	%	2024	%	Total	%
0 - 2	0	0.00	1	16.67	2	40.00	0	0.00	0	0.00	3	12.00
2 - 3	7	87.50	4	66.67	2	40.00	0	0.00	1	33.33	14	56.00
3 - 5	1	12.50	1	16.67	1	20.00	3	100.00	1	33.33	7	28.00
5 & above	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
not available	0	0.00	0	0.00	0	0.00	0	0.00	1	33.33	1	4.00
Total	**8**	**100**	**6**	**100**	**5**	**100**	**3**	**100**	**3**	**100**	**25**	**100**

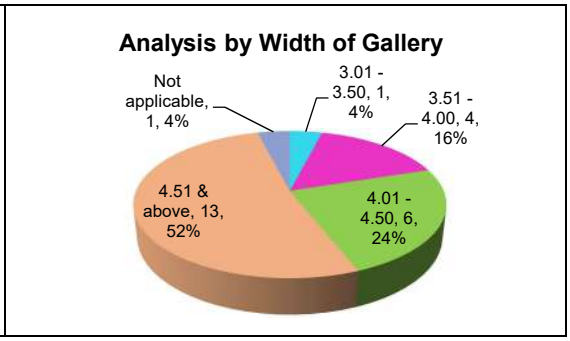




5. Distribution of fatal roof fall accidents by width of gallery

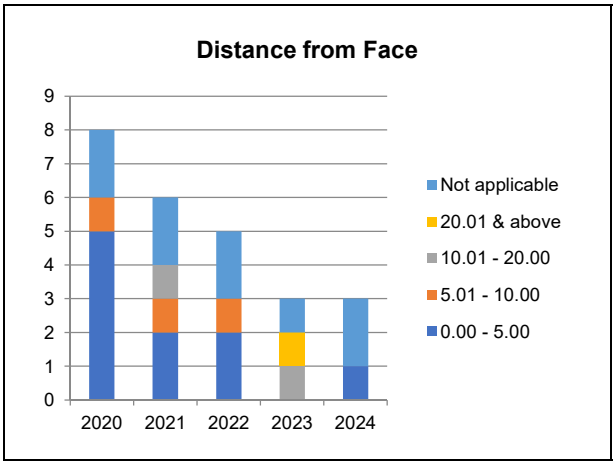
Width of Gallery (mtrs)	Number of accidents											
	2020	%	2021	%	2022	%	2023	%	2024	%	Total	%
0.00- 2.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
2.01- 3.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
3.01- 3.50	1	12.50	0	0.00	0	0.00	0	0.00	0	0.00	1	4.00
3.51- 4.00	1	12.50	1	16.67	2	40.00	0	0.00	0	0.00	4	16.00
4.01- 4.50	3	37.50	2	33.33	0	0.00	0	0.00	1	33.33	6	24.00
4.51 & above	3	37.50	3	50.00	3	60.00	3	100.00	1	33.33	13	52.00
not applicable	0	0.00	0	0.00	0	0.00	0	0.00	1	33.33	1	4.00
Total	**8**	**100**	**6**	**100**	**5**	**100**	**3**	**100**	**3**	**100**	**25**	**100**

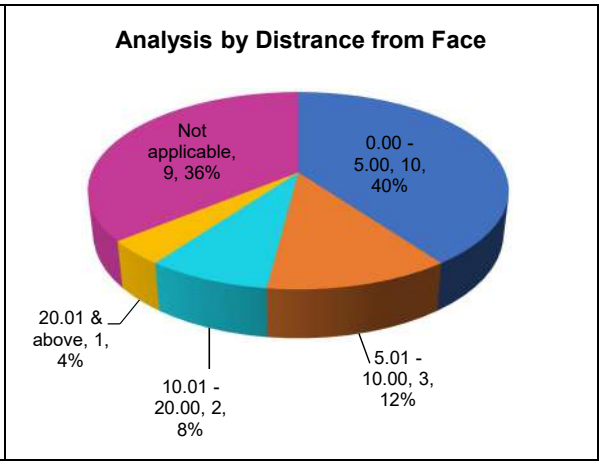




6. Distribution of fatal roof fall accidents by distance from face

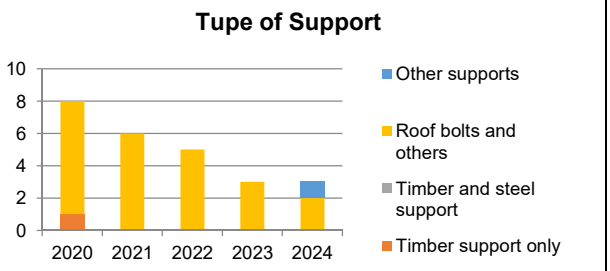
Distance from face (metres)	Number of accidents											
	2020	%	2021	%	2022	%	2023	%	2024	%	Total	%
0.00- 5.00	5	62.50	2	33.33	2	40.00	0	0.00	1	33.33	10	40.00
5.01- 10.00	1	12.50	1	16.67	1	20.00	0	0.00	0	0.00	3	12.00
10.01- 20.00	0	0.00	1	16.67	0	0.00	1	33.33	0	0.00	2	8.00
20.01 & above	0	0.00	0	0.00	0	0.00	1	33.33	0	0.00	1	4.00
not applicable/ available	2	25.00	2	33.33	2	40.00	1	33.33	2	66.67	9	36.00
Total	**8**	**100**	**6**	**100**	**5**	**100**	**3**	**100**	**3**	**100**	**25**	**100**

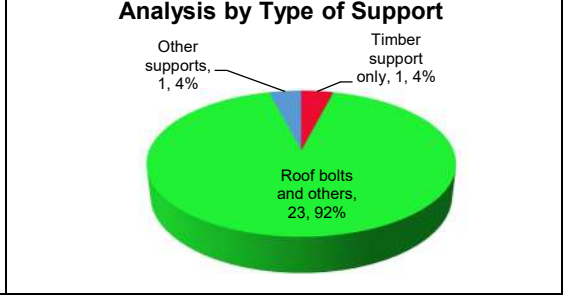




7. Distribution of fatal roof fall accidents by type of roof support

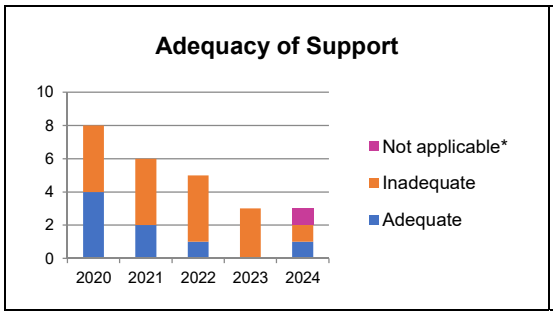
Type of support	Number of accidents											
	2020	%	2021	%	2022	%	2023	%	2024	%	Total	%
No support	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Timber supports only	1	12.50	0	0.00	0	0.00	0	0.00	0	0.00	1	4.00
Timber and steel supports	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Roof bolts and others	7	87.50	6	100.00	5	100.00	3	100.00	2	66.67	23	92.00
Other supports	0	0.00	0	0.00	0	0.00	0	0.00	1	33.33	1	4.00
Total	**8**	**100**	**6**	**100**	**5**	**100**	**3**	**100**	**3**	**100**	**25**	**100**

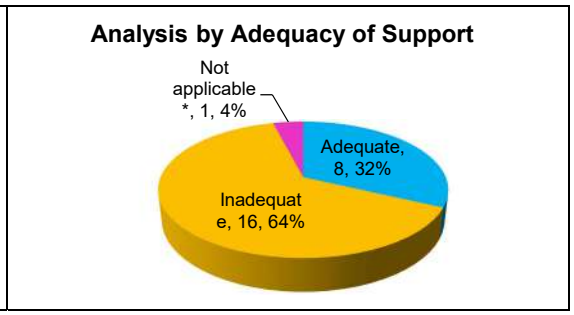




8. Distribution of fatal roof fall accidents by adequacy of support

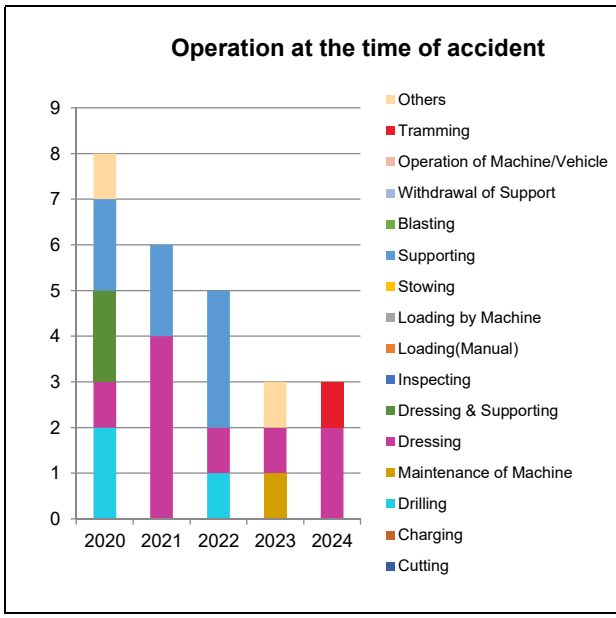
Adequacy of support	Number of accidents											
	2020	%	2021	%	2022	%	2023	%	2024	%	Total	%
Adequate	4	50.00	2	33.33	1	20.00	0	0.00	1	33.33	8	32.00
Inadequate	4	50.00	4	66.67	4	80.00	3	100.00	1	33.33	16	64.00
Not applicable*	0	0.00	0	0.00	0	0.00	0	0.00	1	33.33	1	4.00
Total	**8**	**100**	**6**	**100**	**5**	**100**	**3**	**100**	**3**	**100**	**25**	**100**

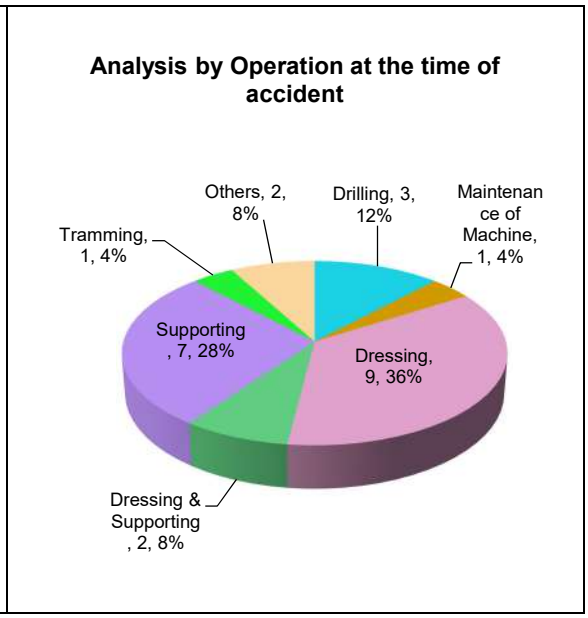




9. Distribution of fatal roof fall accidents by operation at the time of accident

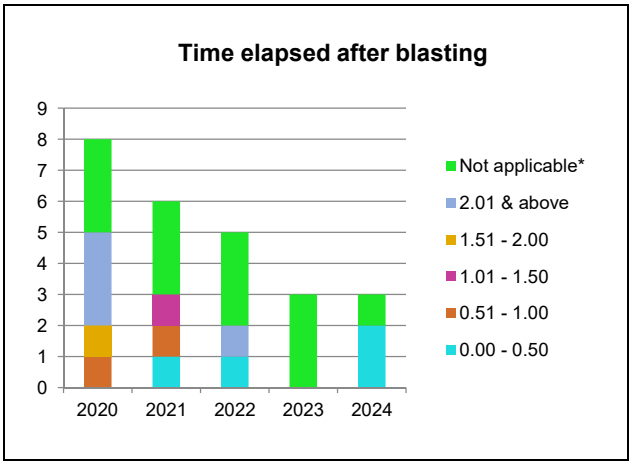
Operation at the time of accident	Number of accidents											
	2020	%	2021	%	2022	%	2023	%	2024	%	Total	%
Cutting	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Charging	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Drilling	2	25.00	0	0.00	1	20.00	0	0.00	0	0.00	3	12.00
Maintenance of Machine	0	0.00	0	0.00	0	0.00	1	33.33	0	0.00	0	0.00
Dressing	1	12.50	4	66.67	1	20.00	1	33.33	2	66.67	9	36.00
Dressing &Supporting	2	25.00	0	0.00	0	0.00	0	0.00	0	0.00	2	8.00
Inspecting	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Loading (manual)	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Loading by machine	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Stowing	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Supporting	2	25.00	2	33.33	3	60.00	0	0.00	0	0.00	7	28.00
Blasting	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Withdrawal of supports	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Operation of Machine/Vehicle	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Tramming	0	0.00	0	0.00	0	0.00	0	0.00	1	33.33	1	4.00
Others	1	12.50	0	0.00	0	0.00	1	33.33	0	0.00	2	8.00
Total	**8**	**100**	**6**	**100**	**5**	**100**	**3**	**100**	**3**	**100**	**25**	**100**

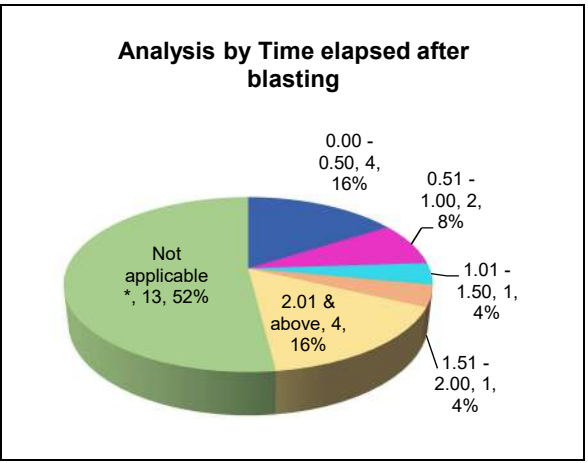




10. Distribution of fatal roof fall accidents by Time elapsed after blasting

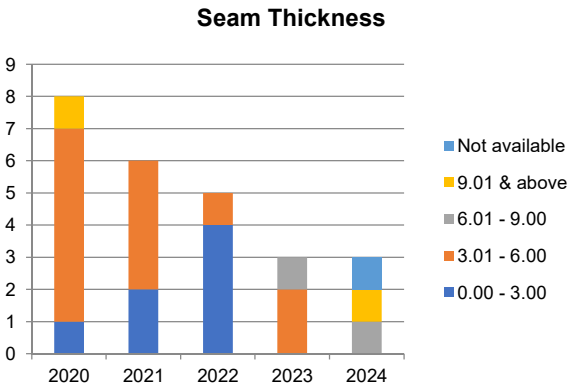
Time elapsed after blasting (hours)	Number of accidents											
	2020	%	2021	%	2022	%	2023	%	2024	%	Total	%
0.00- 0.50	0	0.00	1	16.67	1	20.00	0	0.00	2	66.67	4	16.00
0.51- 1.00	1	12.50	1	16.67	0	0.00	0	0.00	0	0.00	2	8.00
1.01- 1.50	0	0.00	1	16.67	0	0.00	0	0.00	0	0.00	1	4.00
1.51- 2.00	1	12.50	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
2.01 & above	3	37.50	0	0.00	1	20.00	0	0.00	0	0.00	4	16.00
not applicable*	3	37.50	3	50.00	3	60.00	3	100.00	1	33.33	13	52.00
Total	**8**	**100**	**6**	**100**	**5**	**100**	**3**	**100**	**3**	**100**	**25**	**100**

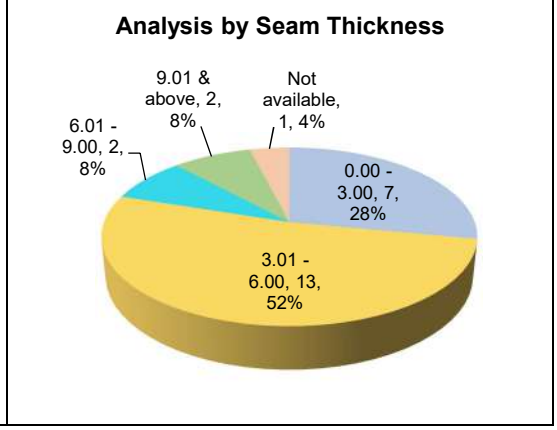




11. Distribution of fatal roof fall accidents by thickness of seam

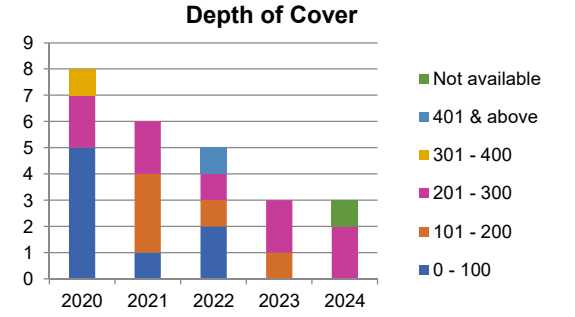
Seam thickness (metres)	Number of accidents											
	2020	%	2021	%	2022	%	2023	%	2024	%	Total	%
0.00- 3.00	1	12.50	2	33.33	4	80.00	0	0.00	0	0.00	7	28.00
3.01- 6.00	6	75.00	4	66.67	1	20.00	2	66.67	0	0.00	13	52.00
6.01- 9.00	0	0.00	0	0.00	0	0.00	1	33.33	1	33.33	2	8.00
9.01 & above	1	12.50	0	0.00	0	0.00	0	0.00	1	33.33	0	0.00
not available	0	0.00	0	0.00	0	0.00	0	0.00	1	33.33	1	4.00
Total	**8**	**100**	**6**	**100**	**5**	**100**	**3**	**100**	**3**	**100**	**25**	**100**

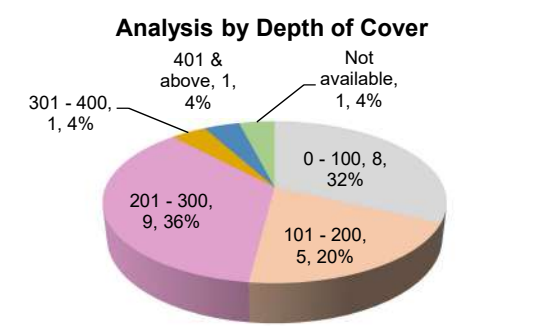




12. Distribution of fatal roof fall accidents by depth of cover

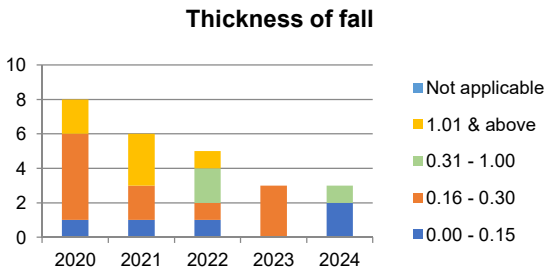
Depth of cover (metres)	Number of accidents											
	2020	%	2021	%	2022	%	2023	%	2024	%	Total	%
0- 100	5	62.50	1	16.67	2	40.00	0	0.00	0	0.00	8	32.00
101- 200	0	0.00	3	50.00	1	20.00	1	33.33	0	0.00	5	20.00
201- 300	2	25.00	2	33.33	1	20.00	2	66.67	2	66.67	9	36.00
301- 400	1	12.50	0	0.00	0	0.00	0	0.00	0	0.00	1	4.00
401 & above	0	0.00	0	0.00	1	20.00	0	0.00	0	0.00	1	4.00
not available	0	0.00	0	0.00	0	0.00	0	0.00	1	33.33	1	4.00
Total	**8**	**100**	**6**	**100**	**5**	**100**	**3**	**100**	**3**	**100**	**25**	**100**

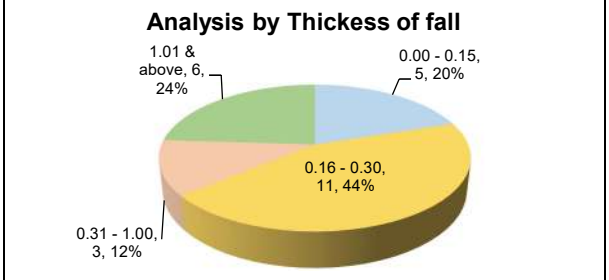




13. Distribution of fatal roof fall accidents by thickness of fall

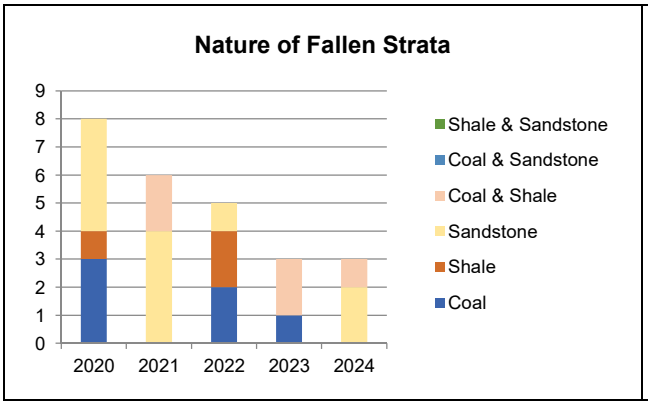
Thickness of fall (metres)	Number of accidents											
	2020	%	2021	%	2022	%	2023	%	2024	%	Total	%
0.00- 0.15	1	12.50	1	16.67	1	20.00	0	0.00	2	66.67	5	20.00
0.16- 0.30	5	62.50	2	33.33	1	20.00	3	100.00	0	0.00	11	44.00
0.31- 1.00	0	0.00	0	0.00	2	40.00	0	0.00	1	33.33	3	12.00
1.01 & above	2	25.00	3	50.00	1	20.00	0	0.00	0	0.00	6	24.00
not applicable	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Total	**8**	**100**	**6**	**100**	**5**	**100**	**3**	**100**	**3**	**100**	**25**	**100**

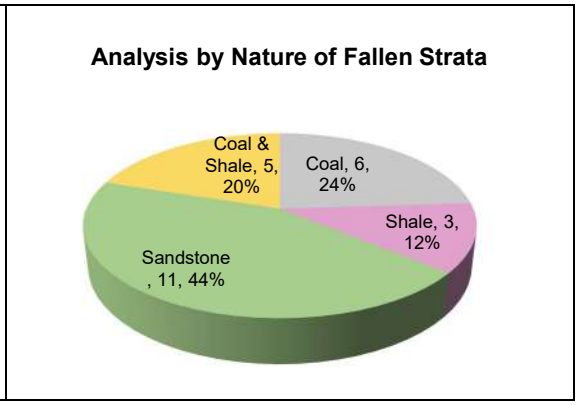




14. Distribution of fatal roof fall accidents by nature of fallen strata

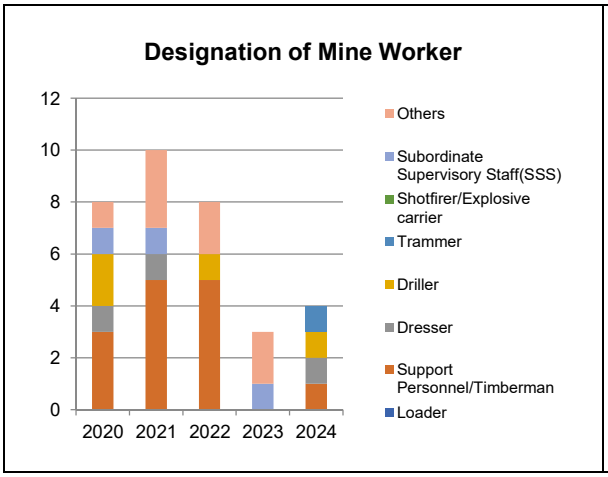
Nature of fallen strata	Number of accidents											
	2020	%	2021	%	2022	%	2023	%	2024	%	Total	%
Coal	3	37.50	0	0.00	2	40.00	1	33.33	0	0.00	6	24.00
Shale	1	12.50	0	0.00	2	40.00	0	0.00	0	0.00	3	12.00
Sandstone	4	50.00	4	66.67	1	20.00	0	0.00	2	66.67	11	44.00
Coal & Shale	0	0.00	2	33.33	0	0.00	2	66.67	1	33.33	5	20.00
Coal & Sandstone	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Shale &Sandstone	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Total	**8**	**100**	**6**	**100**	**5**	**100**	**3**	**100**	**3**	**100**	**25**	**100**

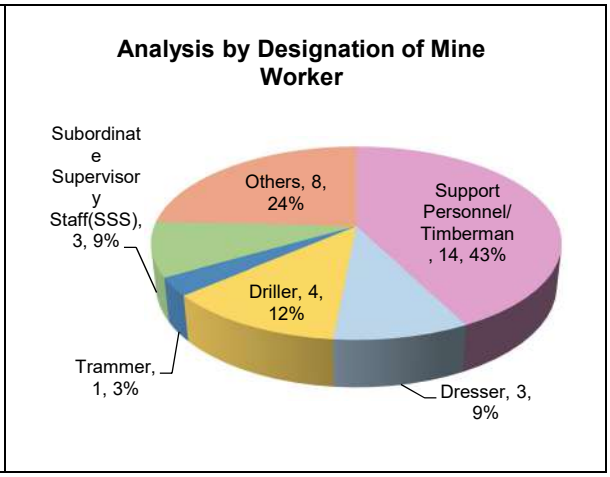




15. Distribution of persons killed in roof fall accidents by designation

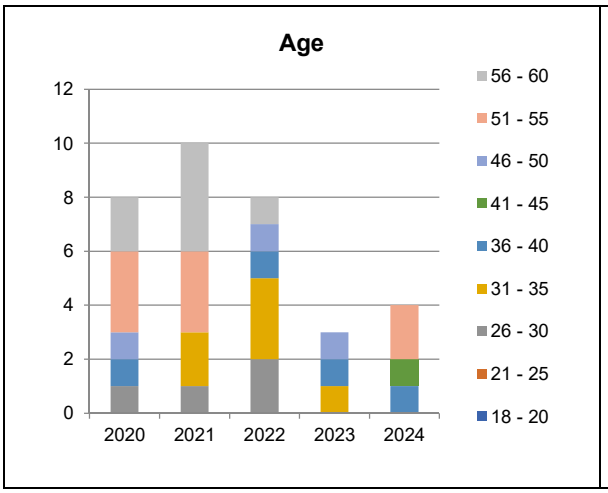
Category of mine worker	Number of persons killed											
	2020	%	2021	%	2022	%	2023	%	2024	%	Total	%
Loader	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Support Personnel/ Timberman	3	37.50	5	50.00	5	62.50	0	0.00	1	25.00	14	42.42
Dresser	1	12.50	1	10.00	0	0.00	0	0.00	1	25.00	3	9.09
Driller	2	25.00	0	0.00	1	12.50	0	0.00	1	25.00	0	0.00
Trammer	0	0.00	0	0.00	0	0.00	0	0.00	1	25.00	1	3.03
Shotfirer /Explosive carrier	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Sub. Supervisory staff	1	12.50	1	10.00	0	0.00	1	33.33	0	0.00	3	9.09
Others	1	12.50	3	30.00	2	25.00	2	66.67	0	0.00	8	24.24
Total	**8**	**100**	**10**	**100**	**8**	**100**	**3**	**100**	**4**	**100**	**33**	**100**

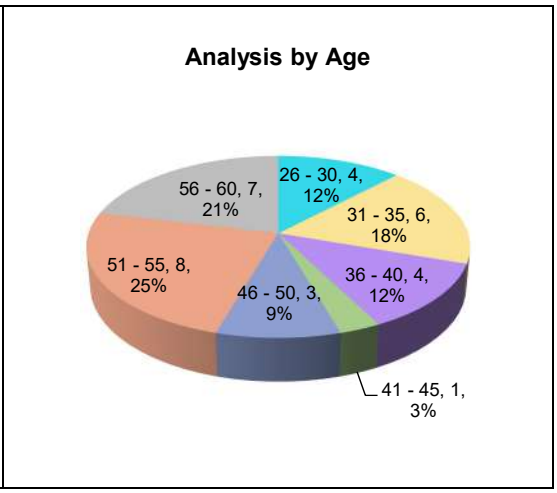




16. Distribution of persons killed in roof fall accidents by age

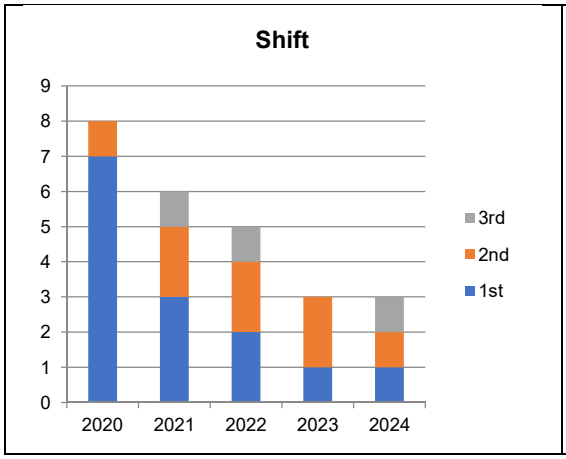
Age	Number of persons killed											
	2020	%	2021	%	2022	%	2023	%	2024	%	Total	%
18 – 20	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
21 – 25	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
26 – 30	1	12.50	1	10.00	2	25.00	0	0.00	0	0.00	4	12.12
31 – 35	0	0.00	2	20.00	3	37.50	1	33.33	0	0.00	6	18.18
36 – 40	1	12.50	0	0.00	1	12.50	1	33.33	1	25.00	4	12.12
41 – 45	0	0.00	0	0.00	0	0.00	0	0.00	1	25.00	1	3.03
46 – 50	1	12.50	0	0.00	1	12.50	1	33.33	0	0.00	3	9.09
51 – 55	3	37.50	3	30.00	0	0.00	0	0.00	2	50.00	8	24.24
56 – 60	2	25.00	4	40.00	1	12.50	0	0.00	0	0.00	7	21.21
Total	**8**	**100**	**10**	**100**	**8**	**100**	**3**	**100**	**4**	**100**	**33**	**100**

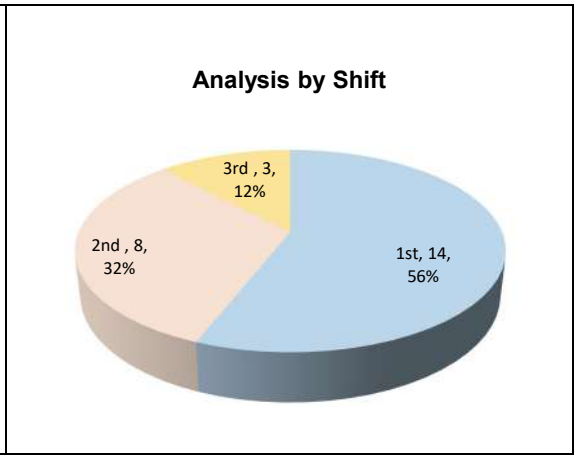




17. Distribution of fatal roof fall accidents by shift during which accident occurred

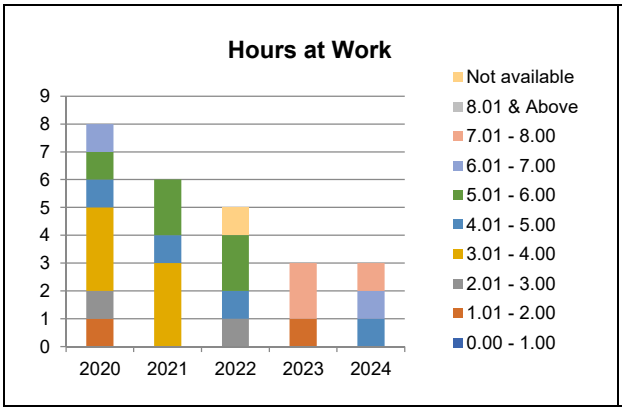
Shift	Number of accidents											
	2020	%	2021	%	2022	%	2023	%	2024	%	Total	%
1st (7/8 AM to 3/4 PM)	7	87.50	3	50.00	2	40.00	1	33.33	1	33.33	14	56.00
2nd 3/4 PM to 11/12 M	1	12.50	2	33.33	2	40.00	2	66.67	1	33.33	8	32.00
3rd 11/12M to 7/8 AM	0	0.00	1	16.67	1	20.00	0	0.00	1	33.33	3	12.00
Total	**8**	**100**	**6**	**100**	**5**	**100**	**3**	**100**	**3**	**100**	**25**	**100**

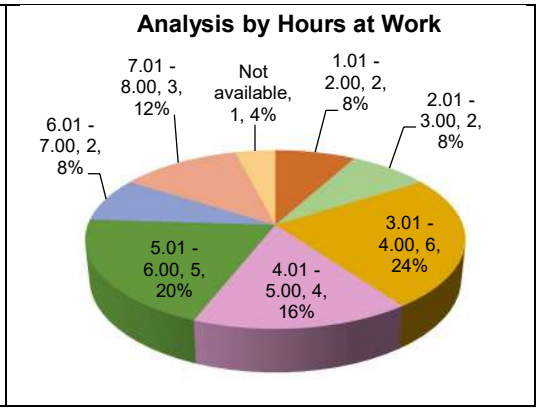




18. Distribution of fatal roof fall accidents by hours spent at work prior to the accident

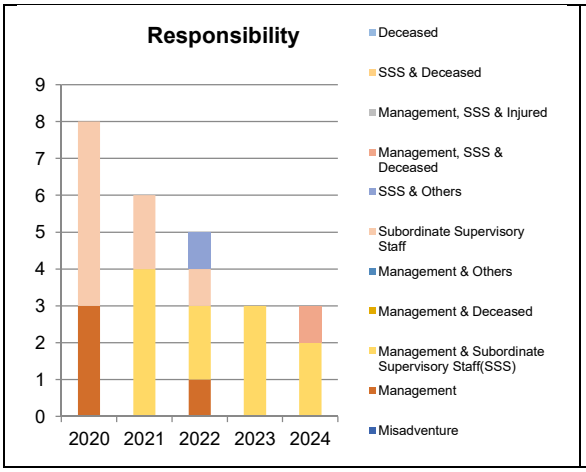
Hours at Work	Number of accidents											
	2020	%	2021	%	2022	%	2023	%	2024	%	Total	%
0.00- 1.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
1.01- 2.00	1	12.50	0	0.00	0	0.00	1	33.33	0	0.00	2	8.00
2.01- 3.00	1	12.50	0	0.00	1	20.00	0	0.00	0	0.00	2	8.00
3.01- 4.00	3	37.50	3	50.00	0	0.00	0	0.00	0	0.00	6	24.00
4.01- 5.00	1	12.50	1	16.67	1	20.00	0	0.00	1	33.33	4	16.00
5.01- 6.00	1	12.50	2	33.33	2	40.00	0	0.00	0	0.00	5	20.00
6.01- 7.00	1	12.50	0	0.00	0	0.00	0	0.00	1	33.33	2	8.00
7.01- 8.00	0	0.00	0	0.00	0	0.00	2	66.67	1	33.33	3	12.00
8.01 & above	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
not available	0	0.00	0	0.00	1	20.00	0	0.00	0	0.00	1	4.00
Total	**8**	**100**	**6**	**100**	**5**	**100**	**3**	**100**	**3**	**100**	**25**	**100**

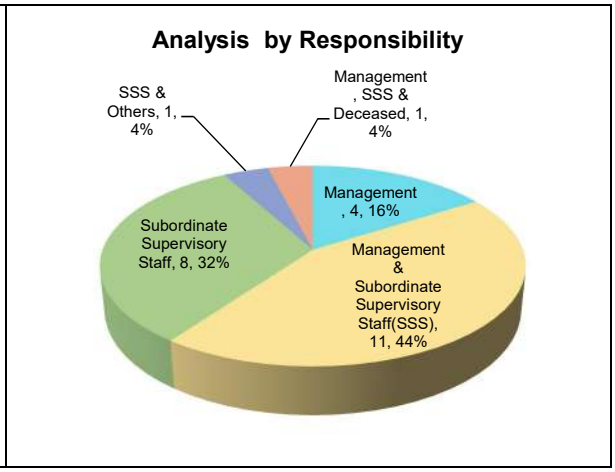




19. Distribution of fatal roof fall accidents by responsibility

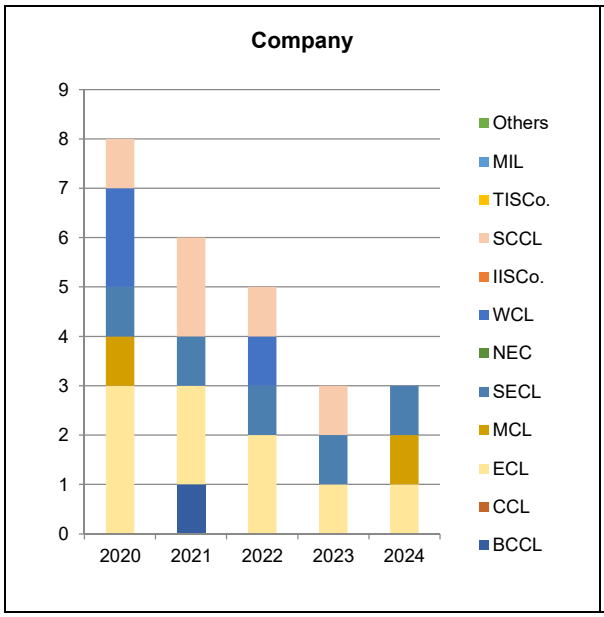
Responsibility	Number of persons											
	2020	%	2021	%	2022	%	2023	%	2024	%	Total	%
Misadventure	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Management	3	37.50	0	0.00	1	20.00	0	0.00	0	0.00	4	16.00
Management &Sub- ordinate Supervisory Staff(SSS)	0	0.00	4	66.67	2	40.00	3	100.00	2	66.67	11	44.00
Management & Deceased	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Management & Others	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Sub-ordinate Supervisory Staff (SSS)	5	62.50	2	33.33	1	20.00	0	0.00	0	0.00	8	32.00
SSS & Others	0	0.00	0	0.00	1	20.00	0	0.00	0	0.00	1	4.00
Management, SSS & Deceased	0	0.00	0	0.00	0	0.00	0	0.00	1	33.33	1	4.00
Management,SSS & Injured	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
SSS & Deceased	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Deceased	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Total	**8**	**100**	**6**	**100**	**5**	**100**	**3**	**100**	**3**	**100**	**25**	**100**

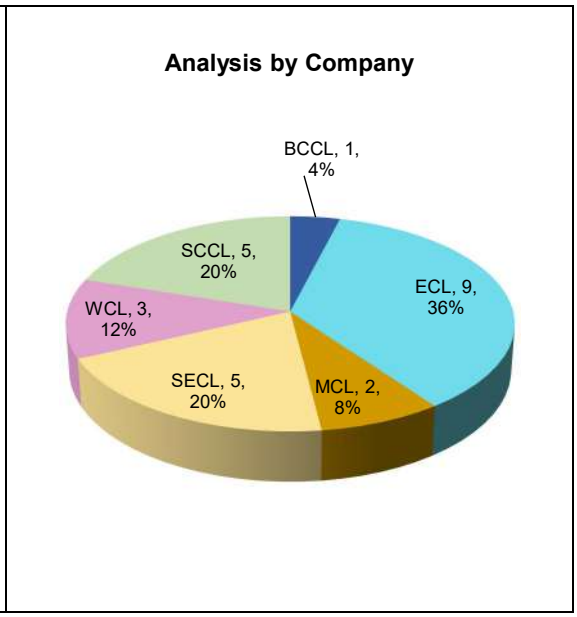




20. Distribution of fatal roof fall accidents by company

Company	Number of accidents											
	2020	%	2021	%	2022	%	2023	%	2024	%	Total	%
BCCL	0	0.00	1	16.67	0	0.00	0	0.00	0	0.00	1	4.00
CCL	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
ECL	3	37.50	2	33.33	2	40.00	1	33.33	1	33.33	9	36.00
MCL	1	12.50	0	0.00	0	0.00	0	0.00	1	33.33	2	8.00
SECL	1	12.50	1	16.67	1	20.00	1	33.33	1	33.33	5	20.00
NEC	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
WCL	2	25.00	0	0.00	1	20.00	0	0.00	0	0.00	3	12.00
CIL: total	7	87.50	4	66.67	4	80.00	2	66.67	3	100.00	20	80.00
IISCO	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
SCCL	1	12.50	2	33.33	1	20.00	1	33.33	0	0.00	5	20.00
TISCO	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
MIL	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Others	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
All-India	**8**	**100**	**6**	**100**	**5**	**100**	**3**	**100**	**3**	**100**	**25**	**100**





2.2.3.B.3 Side fall and over hangs

There were two accidents reported due to Fall of sides (other than overhangs) and no accident was reported due to Fall of overhangs during the year 2024.

2.2.3.B.4 Air blast

There were no fatal accidents reported due to this cause during the year 2024.

2.2.3.C Transportation machinery (Winding)

There was no accident reported due to transportation machinery (Winding) during the year 2024.

2.2.3.D Transportation machinery (Other than winding)

There were 12 fatal accidents occurred due to transportation machinery other than winding involving 12 fatalities reported during the year 2024. A detail break-up of fatalities under this category is given in the table below:

TABLE – 24	**FATAL ACCIDENTS DUE TO TRANSPORTATION MACHINERY (OTHER THAN WINDING IN SHAFTS) IN COAL MINES DURING 2024**	
Cause	**No. of fatal accidents**	**No. of person killed**
1. Rope Haulage	1	1
2. Mechanical Conveyors	2	2
3. Dumpers	4	4
4. Wheeled Trackless (Truck, Tanker etc.)	5	5
5. Wagon Movement	-	-
6. Others	-	-
Total	**12**	**12**

Note : Figures are provisional.

From the above it is seen that dumpers/tippers is the main contributory factor to fatal accidents in opencast coal mines.

2.2.3.D.1 Rope Haulages

There was 01 fatal accident (5.55% of all accidents) caused due to rope haulages during the year, 2024. Analysis of causes revealed that the accident occurred due to uncontrollably running away of tubs after the tubs delinked from the first tub.

2.2.3.D.2 Mechanical Conveyors:

Two fatal accidents were reported due to mechanical conveyors during the year 2024.

In first accident, the hand of the worker got entrapped in-between roller and conveyor belt while he was removing a detached roller and broken liner pieces from beneath the moving belt conveyor.

In the second, accident a contractual workman engaged for examination and maintenance of belt conveyor at top bench in an opencast coal mine was crossing the stationary belt conveyor, suddenly the belt started and he was carried over it to the tail end, where his head was hit and stuck under v-wiper.

2.2.3.D.3 Dumpers and tippers:

There were 04 accidents due to machineries occurred resulting 04 fatalities (33.33% of all fatalities) due to dumpers and tippers during the year 2024. The analysis of above accident revealed that-

1. One accident occurred due to sudden moving forward of dumper.
2. One accident occurred due to hitting by dumper near the curved portion of road.
3. One accident occurred due to lost the control over dumpers/tippers by driver.
4. One accident occurred due to rolling back of dumper.

2.2.3.D.4 Trucks & Tankers:

05 accidents occurred causing 05 fatalities due to truck & tankers contributing (41.66 %) of total accident. The analysis of above accident revealed that-

1. One accident occurred due to use of mobile and entering carelessly in close proximity of the moving truck.
2. One accident occurred due to runover by nearby truck during tarpaulin covering at non-designated place.
3. One accident occurred due to roll down of empty tipper as it was parked on inclined ground with ignition ON and without parking brakes.
4. One accident occurred due to operator entering into route of another battery hauler.
5. One accident occurred due to over speeding and overtaking on downgradient haul road.

2.2.3.E Machinery other than transportation machinery:

There were 07 accidents reported during the year, 2024, which were caused due to machinery other than transportation machinery. The analysis of the cause revealed that

Table – 25 **FATAL ACCIDENTS IN COAL MINES DUE TO MACHINERY OTHER THAN TRANSPORTATION MACHINERY DURING 2024**

Cause	No. of fatal accidents	No. of person killed
1. Drilling Machines	-	-
2. Cutting Machines	-	-
3. Loading Machines (SDL etc.)	1	1
4. Winding Engine	-	-
5. Shovels/Draglines etc.	-	-
6. Crushing & Screening Plant	-	-
7. Other HEMM	5	5
8. Other Non-Transportation Machinery	1	1
Total:	**7**	**7**

Note : Figures are provisional.

2.2.3.F Explosives:

There were two (5.26% of the total) fatal accident occurred due to explosives during the year 2024 involving nine fatalities.

2.2.3.G Electricity:

There was one (2.63% of the total) fatal accident involving 01 fatality due to electricity during the year 2024.

2.2.3.H Accidents due to Dust, Gas & Fire:

No accident was reported due to dust, gas & fire during the year 2024.

2.2.3.I Falls other than falls of ground:

Falls other than fall of ground caused 09 (23.68% of the total) fatal accidents involving 11 fatalities during the year 2024.

2.2.3.J Other causes:

There was one (2.63% of the total) fatal accident occurred involving 01 fatality due to other causes during the year 2024.

2.2.4 Responsibility

Analysis of accidents as per the persons held responsible for the various causes of accidents during the year 2024 has been indicated in Table 25.

TABLE:26	RESPONSIBILITY FOR FATAL ACCIDENTS IN COAL MINES DURING THE YEAR 2024	
Sl. No.	**Responsibility**	**No. of accidents**
1.	Misadventure	3
2.	Management	9
3.	Management & Subordinate Supervisory Staff (SSS)	5
4.	Management, SSS & Co-worker	4
5.	Management, SSS, Co-worker & Deceased	2
6.	Management, SSS, Co-worker, Deceased & injured	1
7.	Management, SSS & Deceased	2
8.	Management, SSS & Shotfirer	-
9.	Management & Shotfirer	1
10.	Management & Co-worker	1
11.	Management, Coworker & Deceased	-
12.	Management & Deceased	1
13.	Subordinate Supervisory Staff(SSS)	-
14.	SSS & Shotfirer	-
15.	SSS & Co-worker	-
16.	SSS, Co-worker & Deceased	-
17.	SSS & Deceased	3
18.	Co-worker	5
19.	Co-worker & Deceased	-
20.	Others	1
	TOTAL	**38**

It can be seen that in 09 (23.68%) cases Management alone, 05 (13.16%) cases Management along with other Subordinate Supervisory Staff, 05(13.16%) cases with Co-worker and 04(10.53%) cases Management along-with Sub-ordinate Supervisory Staff and Co-worker were responsible. In 03 (7.89%) of the cases Subordinate Supervisory Staff (SSS) along-with Deceased were found responsible, in 02 (5.26%) cases each Management, SSS, Co-worker along-with Deceased and Management and SSS along-with Deceased were responsible. These revelations draw the attention towards better planning and implementation of safety status.

2.3 Dangerous Occurrences

34 (thirty-four) dangerous occurrences were reported under the Coal Mines Regulation, 2017 during the year 2024. Details of dangerous occurrences are given below in Table 26.

Table - 27	DANGEROUS OCCURRENCES IN COAL MINES DURING 2024	
Sl. No.	**Cause**	**No. of cases**
1.	Over winding of cages, skip or bucket	1
2.	Spontaneous heating of coal in belowground	-
3.	Spontaneous heating of coal on surface	1
4.	Spontaneous heating of coal in opencast working	-
5.	Outbreak of fire belowground from spontaneous heating	-
6.	Outbreak of fire belowground from causes other than spontaneous heating	-
7.	Outbreak of fire in quarry from causes other than spontaneous heating	-
8.	Outbreak of fire on surface from causes other than spontaneous heating	-
9.	Premature collapse of workings or failure of pillars/ benches/major roof fall	-
10	Influx of noxious gases	-
11.	Breakage of winding rope	-
12.	Breakdown of winding engine, crank shaft, bearing etc.	-
13.	Ignition or occurrence of inflammable gas	-
14.	Breakage, fracture or failure of essential parts of machinery or apparatus whereby safety of persons was endangered	9
15.	Irruption of water	4
16.	Subsidence/potholing	8
17.	Explosives	2
18.	Others	9
	TOTAL	**34**

A. Spontaneous Heating :

Spontaneous heating in belowground was controlled & confined by sealing those panels by isolation stoppings & in extreme cases either the seam as a whole or the mine as whole was sealed off from surface and nitrogen flushing into the affected area was continued. In one case heating in sealed off panel was controlled by injecting inert gas "Nitrogen". Spontaneous heating and fire in opencast working was due to the presence of old & disused belowground workings standing on pillars. Fire was controlled by spreading incombustible material (stone dust) in the galleries & over pillars and sealing off the galleries by i) isolation stoppings ii) injecting water into the affected area of belowground workings. iii) injecting inert gases where ever required.

Contributory factors for spontaneous heating:

The primary contributory factors which lead to spontaneous heating and thereby fire:

- Non-sectionlization / improper sectionlization of old workings.
- Not cleaning the old galleries and return airways off fallen coal and not treating thoroughly with stone dust.
- Sluggish ventilation in old workings and depillaring areas.
- Working the depillaring panel beyond the incubation period.
- Not filling up the surface cracks formed due to subsidence and causing breathing of air into the sealed off areas and old workings.
- Not making and maintaining the isolation stoppings as prescribed.

- Stowing lag in depillaring panel.
- Non-availability of CO detecting instruments & negligence in taking CO samples in return airway of depillaring panel on routine basis.
- Negligence in monitoring the status of gas samples behind the isolation stoppings.

Corrective measures:

- Rate of extraction has to be made faster by deploying well maintained loading machines and loss of coal in the goaf has to be minimized.
- Isolation and sectionlization stoppings have to be regularly inspected as per statute to detect early stage of spontaneous heating.
- Strengthening of old stoppings.
- Fallen loose coal has to be cleaned off regularly.
- Surface area above the goaved out panels shall be filled up to avoid breathing of air.
- All the galleries exposed on the side of entries to the belowground workings in the seam shall be covered effectively to avoid breathing of air through those galleries.
- Rib of coal left as barrier between opencast working and belowground working need to be covered to prevent formation of return circuit through the cracks/fissures developed at the surface.
- There should not be stowing lag in the goaf of depillaring panel.
- Boreholes and subsidence areas, if any should be kept plugged and cracks should be filled-up completely.
- Provision of Pressure balancing in the concerned areas.
- Tele monitoring devices should be installed for round the clock monitoring of any emission of noxious/inflammable gases.

B. Fires:

There was no case of outbreak of fire.

Corrective measures:

- Suitable firefighting plan should be prepared and implemented in the mine.
- Proper care should be taken during refueling diesel. A code of practice shall be drawn up for dealing with fires at different location in opencast mines, including HEMM. Arrangements for fighting fire should be provided on all heavy earth moving machineries. Such arrangements should, if possible, operate automatically on appearance of fire.
- Timely action has to be initiated if active fire is known to be existed behind the stoppings.
- Reinforcement of stoppings and cleaning of return airway to prevent choking shall be done.
- Adequate precautions shall be taken as per statute while using flame or electric welding or repairing apparatus below-ground.
- Availability of Fire Tender in the mine must be ensured.

C. Premature collapse of workings or failure of pillars/ benches/major roof fall:

There was no case of premature collapse of workings or failure of pillars/ benches/major roof fall.

D. Influx of Noxious Gases:

There were no case of occurrences of Noxious Gases.

E. Ignition or occurrence of inflammable gas:

There was no case of occurrence of inflammable gas.

F. Breakage, fracture etc. of essential parts of machinery or apparatus whereby safety of persons was endangered

There were nine(09) cases of Breakage, fracture etc. of essential parts of machinery or apparatus whereby safety of persons was endangered.

Corrective measures :

- **Planned Preventive Maintenance (PPM) :** Implement a strict preventive maintenance schedule for all critical machinery, follow OEM-recommended inspection intervals and replacement cycles, replace parts before end-of-life, not after failure.

- **Condition Monitoring & Predictive Maintenance :** Use vibration analysis, thermography, oil analysis, and ultrasonic testing, monitor for early signs of Fatigue cracks, misalignment, overheating, excessive wear, keep trend records for early intervention.

- **Quality of Spares & Materials :** Use only OEM-approved or certified spare parts, avoid sub-standard, refurbished, or unauthorized components, ensure proper storage of spares to prevent corrosion or damage.

- **Proper Installation & Commissioning :** Ensure machinery is installed by trained and competent persons, Verify alignment, torque settings ,lubrication, load testing, conduct pre-commissioning safety checks.

- **Operational Controls :** Do not operate machinery beyond design load or speed limits, enforce Standard Operating Procedures (SOPs), prevent misuse, shock loading, or sudden starts/stops, use interlocks, guards, and overload protection devices.

G. Irruption of water /Landslide:

There were four cases of inrush of water due to continuous heavy rainfall. Old bore hole connecting to belowground working collapsed causing depression on surface.

Corrective measures :

- **Identification & Documentation :** Survey and map all old boreholes (exploration, dewatering, grouting, abandoned wells), verify depth, diameter, casing condition, and sealing status, maintain an updated borehole inventory linked with underground workings.

- **Proper Sealing of Old Boreholes :** Plug and abandon boreholes using approved methods, cement–bentonite grout from bottom to top, mechanical plugs where required, ensure water-tight sealing, especially through aquifers, remove or properly seal corroded or damaged casing.

- **Surface Water Management :** Construct proper drainage systems to divert rainwater away from borehole locations, avoid water accumulation near, old boreholes, subsidence-prone areas, provide stormwater channels, bunds, and sumps.

H. Subsidence /Potholing:

There were eight cases of subsidence.

Corrective measures :

- **Proper Mine Planning & Design :** Adopt scientific panel layout with adequate barrier and safety pillars, design pillars based on Depth of cover, Geology and strata strength, Method of extraction, avoid extraction below inhabited areas, roads, railways, and water bodies without special permission.

- **Controlled Extraction Methods :** Avoid over-extraction or indiscriminate depillaring, follow approved depillaring sequence with systematic goaf formation, leave protective coal pillars under surface structures.

- **Stowing / Backfilling :** Use sand stowing, hydraulic stowing, or paste fill in subsidence-prone areas, ensure proper compaction and void filling to reduce surface movement, stowing should be continuous and well monitored.

- **Management of Old Workings** : Identify and map old and abandoned workings, fill or isolate old voids by grouting or stowing, maintain barrier pillars between active workings and old goafs.

- **Monitoring & Early Detection :** Conduct regular surface surveys for cracks, depressions, and sinkholes, install subsidence monitoring stations (benchmarks, settlement markers), monitor underground indicators : Roof convergence, Pillar stress , Goaf behavior.

- **Surface Water Control :** Prevent accumulation of water on the surface, provide proper drainage systems to divert rainwater away from subsidence-prone zones and old workings, avoid water percolation into underground voids.

I. Explosives:

There were two cases of explosion.

J. Others:

There were 09 cases.

2.4 Technical Developments

❖ During the year 2024, 2.70% of the total production came from belowground workings and 97.30% of the total production came from opencast mines. As far as average daily employment was concerned 26.59% were employed belowground, 52.13% were employed in opencast workings and the remaining 21.28% were employed for other surface operations.

TABLE - 28		TREND IN USE OF HEAVY EARTH MOVING MACHINERY IN OPENCAST COAL MINES							
Year	Material Transport	Other Transport	Coal Cutting/ Ripping/ Shearing	Drilling Machines	Loading Machines	Compressors	Conveyors	Other Machinery	HP of the Machinery
2016	6541	1357	224	679	1436	242	330	3840	6353101
2017	6463	1464	218	709	1514	273	396	4020	6555904
2018	8489	1534	249	775	1772	302	459	4547	7841650
2019	9575	1994	289	839	2066	395	542	4844	9162618
2020	9961	2188	323	857	2261	396	545	4840	10068628
2021	10801	2339	364	888	2393	431	557	5282	10481970
2022	12082	2684	395	935	2673	434	575	5768	11136029
2023	13409	3357	390	963	2960	480	605	16985	12384368
2024*	16487	3369	456	1069	3624	588	631	6683	14113649

* Provisional.

(a) Number of machines used in belowground coal mines of different coal companies are as follows:

Table-29	Number of machines used in belowground coal mines during 2024							
Name of Company	Man Riding	Other Transport	Coal Cutting/ Ripping/ Shearing	Drilling Machines	Loading Machines	Compressors	Conveyors	Other Machinery
BCCL	1	28	7	7	7	14	42	60
CCL	0	5	1	8	20	0	6	4
ECL	13	324	16	294	207	21	133	163
MCL	4	33	0	24	18	0	33	28
SECL	16	209	20	216	142	5	396	252
WCL	15	178	3	167	90	3	187	98
SCCL	54	171	6	566	173	133	100	207
SAIL	1	5	1	4	0	5	21	2
RCCPL	1	0	0	29	12	0	23	1
Sunflag	0	0	0	4	4	3	10	3
TATA Steel	1	47	0	12	21	11	109	1096
UltraTech	4	3	2	3	5	3	12	5
AMBUJA	1	0	0	10	12	0	9	0
Total	**111**	**1003**	**56**	**1344**	**711**	**198**	**1081**	**1919**

* Figures are provisional.

2.5 Occupational Health

Medical Examination by Appellate Medical Board

Initial and periodical medical examination under Rule 29B of the Mines Rules, 1955 are conducted by management and medical re-examination by Appellate Medical Board constituted by Central Government under Rule 29K.

(a) Progress of Medical Examination in Coal Mines:

TABLE: 30	PROGRESS OF INITIAL & PERIODICAL MEDICAL EXAMINATION DURING 2024 IN COAL MINES			
Name of Company	Initial Medical Examination		Periodical Medical Examination	
	Required	Provided	Required	Provided
BCCL	517	744	8590	8180
CCL	1841	1879	9459	9591
ECL	1836	1795	11367	11562
MCL	2751	3160	3721	3724
NEC	98	98	108	108
NCL	1778	1778	2649	2269
SECL	3495	4425	11122	12037
WCL	10148	10148	10311	10356
RRVUN	3225	3225	273	273
NLC	2337	2337	3973	3976
BARMER LIGNITE	2208	2208	0	0
NTPC	1842	1842	94	94
JPL	2074	2074	271	271
SCCL	1403	1403	5363	5411
WBPDCL	810	748	187	175
KPCL	808	808	0	0
NALCO	686	515	24	24
AMBUJA	671	671	48	48
CSPGC	665	665	40	40
TATA	590	590	609	609
TSGENCO	501	501	293	293
PSPCL	485	481	0	0
AURO INFRA	450	663	0	0
RCCPL	447	447	104	104
OCPL	403	403	111	111
GIPCL	402	402	90	90
GMDC	248	224	53	53
JMS MINING	240	240	1	1
RSMML	204	204	34	34
SAIL	199	199	247	247
SARDA ENERGY	158	158	0	0
VEDANTA	131	131	0	13
JSW	120	30	120	0
Others	402	382	1119	1196
Total	**44173**	**45578**	**70381**	**70890**

(b) Cases of Notified Diseases in Coal Mines:

TABLE: 31	CASES OF NOTIFIED DISEASES IN COAL MINES DURING THE YEAR 2024	
Mining Companie(s)	**Name of Disease**	**Number of cases**
SCCL	Pneumoconiosis	4
	Carcinoma Right Lung with mediastinal Lymphaedenopthy and bone metastasis	1
MCL	Suspected Pneumoconiosis	1

2.6 Vocational Training

Recognizing the need for safety education to enable the mine workers to prepare them to face the challenges of mining, the Mines Vocational Training Rules were framed in 1966. These rules provide the provision for construction of mine vocational training centers, initial, refresher and special training to mine workers, appointment of training officers, instructors, proper training aids and equipments. It also provides for payment to trainees during the training period. Progress of vocational training in coal mines during the year 2024 was reported to be as follows.

Table: 32	PROGRESS OF VOCATIONAL TRAINING IN MINES DURING THE YEAR 2024					
Company	No. of VT Centers	Basic Training		Refresher Training		Special Training Provided
		Required	Provided	Required	Provided	
BCCL	11	943	943	5493	5400	3638
CCL	15	1931	2013	3854	3954	1096
ECL	14	2050	1981	6710	6770	1809
MCL	12	2375	4783	2893	3157	1272
NEC	1	108	108	84	99	81
NLC	10	3721	3721	1585	1479	3409
SECL	28	1104	846	1873	1996	1594
WCL	11	3257	3057	3912	4107	2458
AMBUJA CEMENT	1	648	648	356	356	86
AURO INFRA	1	421	429	0	0	115
BARMER LIGNITE	1	2069	2069	0	0	874
CSPGC	1	361	361	0	0	0
DVC	1	129	60	0	0	0
GHCL	1	24	24	17	17	0
GIPCL	2	412	412	110	110	0
GMDC	5	1030	970	111	111	230
GPCL	1	298	298	76	76	9
JMS MINING	2	111	111	56	56	0
JPL	1	2108	2108	23	23	1576
JSW	1	1	0	0	24	0
KPCL	1	808	808	0	0	25
NALCO	1	408	150	0	0	13
NLC	5	2913	2914	1758	2097	943
NTPC	5	1610	1610	241	301	955
OCPL	1	285	285	153	153	82
PSPCL	1	493	468	62	52	20
RCCPL	1	476	476	222	222	82
RSMML	2	139	139	0	0	0
SAIL	1	160	211	100	103	28
SARDA ENERGY	1	75	65	59	54	2
SCCL	10	2043	2043	4692	4600	2657
TATA	2	854	854	1271	1271	1331
TSGENCO	1	478	478	237	237	134
VEDANTA	1	243	243	0	0	868
WBPDCL	2	496	464	93	93	65
Others	13	2859	2929	1553	1299	6712
Total	**168**	**37441**	**39079**	**37594**	**38217**	**32164**

2.7 Workmen's Inspector, Safety Committee & Welfare Officers

Much greater strides in safety can be achieved by participation of workmen in safety management, the twin institutions of 'Safety Committee & 'Workmen's Inspector' have been conceived and given the statutory backing. DGMS is also associated with training of Workmen's Inspectors to make them effective in discharge of their duties. In coal mines almost all the eligible mines had Workmen's Inspector and Safety Committee. The table below shows the status of appointment of Welfare Officer, Workmen's Inspector and formation of Safety Committees during the year 2024.

Table : 33 **NUMBER OF WORKMEN'S INSPECTOR IN POSITION, SAFETY COMMITTEE, WELFARE OFFICERS IN COAL MINES DURING 2024**

Name of Company	Welfare Officers		Workmen Inspectors		Safety Committee	
	Required	Provided	Required	Provided	Required	Provided
BCCL	38	35	105	107	35	35
CCL	42	42	129	128	43	43
ECL	74	70	221	221	59	59
MCL	29	29	86	94	132	133
NEC	1	1	3	3	1	1
NCL	10	10	41	43	10	10
SECL	71	65	199	205	133	133
WCL	49	49	150	147	49	49
AMBUJA CEMENT	2	2	6	6	2	2
AURO INFRA	1	1	3	3	22	22
CSPGC	1	1	3	3	1	1
DVC	1	0	3	3	1	1
GHCL	1	1	3	3	1	1
GIPCL	2	2	2	1	1	1
GMDC	3	3	16	16	19	30
GPCL	1	1	3	3	1	1
JMS MINING	2	2	2	2	10	10
JPL	3	3	9	9	2	2
NALCO	1	1	3	3	1	1
NLC	9	12	25	25	30	30
NTPC	5	5	16	18	5	6
OCPL	1	1	3	4	1	1
Others	2	2	7	7	2	2
PSPCL	1	0	3	3	1	1
RCCPL	1	1	3	3	1	1
RSMML	1	0	9	4	3	3
SAIL	4	2	12	13	4	4
SARDA ENERGY	1	1	3	3	1	1
SCCL	49	48	208	209	466	473
TATA	7	7	23	24	7	7
TSGENCO	2	3	6	6	2	2
VEDANTA	1	1	3	3	1	1
WBPDCL	5	5	10	10	5	5
Others	14	13	41	36	16	16
Total	**435**	**419**	**1433**	**1442**	**1352**	**1372**

2.8 Owner-wise consolidated fatal accident statistics for last 8 (Eight) years in coal mines

Company	Year	FATAL ACCIDENTS							
		BELOWGROUND		OPENCAST		ABOVEGROUND		TOTAL	
		Accident	Killed	Accident	Killed	Accident	Killed	Accident	Killed
BCCL	2017	1	1	0	0	1	1	2	2
	2018	0	0	2	4	2	2	4	6
	2019	2	2	2	2	3	3	7	7
	2020	0	0	3	3	1	1	4	4
	2021	1	2	2	2	0	0	3	4
	2022	0	0	4	5	0	0	4	5
	2023	0	0	5	6	1	1	6	7
CCL	2017	2	3	5	5	0	0	7	8
	2018	2	2	2	2	1	4	5	8
	2019	1	1	1	1	0	0	2	2
	2020	0	0	2	2	0	0	2	2
	2021	0	0	1	1	1	1	2	2
	2022	2	2	1	1	0	0	3	3
	2023	0	0	4	4	0	0	4	4
	2024	0	0	3	3	0	0	3	3
ECL	2017	5	5	3	3	2	2	10	10
	2018	1	2	0	0	0	0	1	2
	2019	6	6	1	1	1	1	8	8
	2020	5	6	1	1	1	1	7	8
	2021	6	6	2	2	1	2	9	10
	2022	2	2	0	0	0	0	2	2
	2023	4	4	0	0	1	1	5	5
	2024	2	2	0	0	1	2	3	4
MCL	2017	0	0	5	5	0	0	5	5
	2018	1	1	6	6	1	1	8	8
	2019	0	0	5	8	2	2	7	10
	2020	1	1	3	3	1	1	5	5
	2021	0	0	1	1	1	1	2	2
	2023	0	0	5	7	1	1	6	8
	2024	1	1	2	2	0	0	3	3
NCL	2017	0	0	4	4	0	0	4	4
	2018	0	0	3	3	1	1	4	4
	2019	0	0	2	2	1	1	3	3
	2020	0	0	2	2	0	0	2	2
	2021	0	0	3	3	0	0	3	3
	2022	0	0	0	0	1	1	1	1
	2023	0	0	3	3	0	0	3	3
	2024	0	0	4	4	2	3	6	7
SECL	2017	3	5	4	4	1	1	8	10
	2018	5	8	7	7	1	1	13	16
	2019	2	3	4	4	1	1	7	8
	2020	3	3	6	6	3	3	12	12
	2021	5	5	2	2	0	0	7	7
	2022	2	2	4	4	2	2	8	8
	2023	1	1	2	2	0	0	3	3
	2024	3	4	3	3	3	3	9	10

Company	Year	FATAL ACCIDENTS							
		BELOWGROUND		OPENCAST		ABOVEGROUND		TOTAL	
		Accident	Killed	Accident	Killed	Accident	Killed	Accident	Killed
WCL	2017	3	3	1	1	1	2	5	6
	2018	1	4	1	1	1	1	3	6
	2019	2	3	1	1	0	0	3	4
	2020	2	2	2	2	1	1	5	5
	2021	1	1	4	4	1	1	6	6
	2022	1	2	0	0	0	0	1	2
	2023	0	0	2	2	0	0	2	2
	2024	0	0	2	2	0	0	2	2
BALCO	2019	0	0	1	1	0	0	1	1
GIPCL	2018	0	0	1	2	0	0	1	2
GMDC	2024	0	0	1	1	0	0	1	1
Hindalco	2019	0	0	1	1	0	0	1	1
IISCO	2019	1	1	0	0	0	0	1	1
	2020	1	1	0	0	0	0	1	1
JMS Mining	2024	0	0	1	1	0	0	1	1
KPCL	2023	0	0	0	0	1	1	1	1
NLCL	2017	0	0	1	1	0	0	1	1
	2018	0	0	1	1	0	0	1	1
	2019	0	0	2	2	0	0	2	2
	2023	0	0	0	0	1	1	1	1
	2024	0	0	2	2	0	0	2	2
NTPC	2017	0	0	0	0	1	1	1	1
	2021	0	0	1	1	0	0	1	1
RCCPL	2021	1	1	0	0	0	0	1	1
SASAN Power	2018	0	0	1	1	0	0	1	1
	2020	0	0	1	2	0	0	1	2
SCCL	2017	4	4	5	5	3	4	12	13
	2018	2	2	5	5	1	1	8	8
	2019	4	4	2	2	2	2	8	8
	2020	3	3	4	7	2	2	9	12
	2021	2	6	4	6	1	1	7	13
	2022	2	4	1	1	1	1	4	6
	2023	3	3	2	2	1	1	6	6
	2024	3	3	2	3	2	2	7	8
TATA Steel	2019	1	1	0	0	0	0	1	1
	2021	0	0	0	0	1	1	1	1
	2023	0	0	1	1	0	0	1	1
TSPGC	2022	0	0	1	1	0	0	1	1
VS Lignite	2017	0	0	1	1	0	0	1	1
WBPDC	2021	0	0	1	1	0	0	1	1
	2024	0	0	1	8	0	0	1	8
Total	2017	18	21	29	29	9	11	56	61
	2018	12	19	29	32	8	11	49	62
	2019	19	21	22	25	10	10	51	56
	2020	15	16	24	28	9	9	48	53
	2021	16	21	21	23	6	7	43	51
	2022	9	12	11	12	4	4	24	28
	2023	8	8	24	27	6	6	38	41
	2024	9	10	21	29	8	10	38	49

Note :Figures for the year 2024 are provisional.

2.9 Owner-wise consolidated serious accident statistics for last 8 (eight) years in coal mines

Company	Year	SERIOUS ACCIDENTS							
		BELOWGROUND		OPENCAST		ABOVEGROUND		TOTAL	
		Accident	S/Inj.	Accident	S/Inj.	Accident	S/Inj.	Accident	S/Inj.
BCCL	2017	4	4	0	0	1	1	5	5
	2018	4	4	1	1	1	1	6	6
	2019	4	4	0	3	0	1	4	8
	2020	1	1	1	6	3	3	5	10
	2021	2	2	3	5	2	2	7	9
	2022	1	1	2	3	2	2	5	6
	2023	3	3	1	1	3	3	7	7
	2024	1	2	1	1	0	0	2	3
CCL	2017	2	2	0	0	1	1	3	3
	2018	2	2	3	4	0	7	5	13
	2019	1	1	0	0	0	0	1	1
	2020	0	0	1	1	0	0	1	1
	2021	0	0	1	1	1	1	2	2
	2022	0	0	2	2	1	1	3	3
	2023	0	0	0	0	1	2	1	2
	2024	0	0	0	0	1	1	1	1
ECL	2017	5	5	1	1	0	0	6	6
	2018	6	7	0	0	3	3	9	10
	2019	8	8	0	0	3	7	11	15
	2020	6	9	1	4	1	1	8	14
	2021	7	8	0	0	3	3	10	11
	2022	6	6	2	2	1	1	9	9
	2023	2	5	1	1	1	1	4	7
	2024	2	2	1	1	0	0	3	3
MCL	2017	0	0	1	1	1	1	2	2
	2018	0	0	1	3	1	1	2	4
	2019	0	0	2	2	0	0	2	2
	2020	1	1	1	1	0	0	2	2
	2021	0	0	0	0	3	3	3	3
	2022	0	0	2	2	2	2	4	4
	2023	0	0	1	4	0	0	1	4
	2024	0	0	2	2	0	0	2	2
NCL	2017	0	0	6	6	0	0	6	6
	2018	0	0	7	7	0	0	7	7
	2019	0	0	2	3	0	0	2	3
	2020	0	0	4	6	1	2	5	8
	2021	1	1	6	6	0	0	7	7
	2022	0	0	7	7	1	1	8	8
	2023	0	0	11	15	1	1	12	16
	2024	0	0	3	8	0	0	3	8

Company	Year	SERIOUS ACCIDENTS							
		BELOWGROUND		OPENCAST		ABOVEGROUND		TOTAL	
		Accident	S/Inj.	Accident	S/Inj.	Accident	S/Inj.	Accident	S/Inj.
SECL	2017	8	8	2	2	1	1	11	11
	2018	10	12	0	0	2	2	12	14
	2019	8	8	4	4	2	2	14	14
	2020	2	2	3	3	2	2	7	7
	2021	11	11	3	3	5	5	19	19
	2022	16	17	4	4	7	7	27	28
	2023	5	6	4	4	3	3	12	13
	2024	6	6	2	2	3	3	11	11
WCL	2017	3	3	2	2	3	3	8	8
	2018	8	8	4	4	2	2	14	14
	2019	4	5	5	5	5	5	14	15
	2020	0	0	1	1	3	3	4	4
	2021	0	0	2	2	3	4	5	6
	2022	2	2	5	7	3	3	10	12
	2023	2	2	1	1	0	0	3	3
	2024	0	0	3	3	1	1	4	4
AMBUJA	2022	1	1	0	0	0	0	1	1
GMDC	2018	0	0	1	1	0	0	1	1
	2020	0	0	1	1	0	0	1	1
	2022	0	0	1	1	0	0	1	1
	2023	0	0	0	0	2	2	2	2
IISCO	2018	0	0	1	1	0	0	1	1
	2020	1	1	0	0	0	0	1	1
	2021	0	0	0	0	1	2	1	2
	2023	1	1	0	0	1	1	2	2
NLCL	2021	0	0	1	1	0	0	1	1
	2022	0	0	1	1	0	0	1	1
	2024	0	0	1	1	1	1	2	2
RSMML	2022	0	0	0	0	1	1	1	1
	2024	0	0	1	1	0	0	1	1
SASAN Power	2017	0	0	1	1	0	0	1	1
	2018	0	0	1	1	0	0	1	1
	2022	0	0	0	0	1	1	1	1
SCCL	2017	163	168	19	19	37	38	219	225
	2018	144	145	24	24	39	39	207	208
	2019	100	100	17	17	26	26	143	143
	2020	53	57	8	11	18	18	79	86
	2021	84	86	15	15	27	27	126	128
	2022	62	67	17	17	23	23	102	107
	2023	42	42	11	11	14	14	67	67
	2024	53	53	11	11	25	25	89	89

Company	Year	SERIOUS ACCIDENTS							
		BELOWGROUND		OPENCAST		ABOVEGROUND		TOTAL	
		Accident	S/Inj.	Accident	S/Inj.	Accident	S/Inj.	Accident	S/Inj.
TATA Steel	2017	5	5	0	0	0	0	5	5
	2019	2	3	0	0	0	0	2	3
	2020	4	4	0	0	0	0	4	4
	2021	3	3	1	1	1	1	5	5
	2022	6	6	1	1	1	1	8	8
	2023	3	3	1	1	2	3	6	7
	2024	1	1	0	0	0	0	1	1
WBPDC	2024	0	0	0	1	0	0	0	1
Total	2017	190	195	32	32	44	45	266	272
	2018	174	178	43	46	48	55	265	279
	2019	127	129	30	34	36	41	193	204
	2020	68	75	21	34	28	29	117	138
	2021	108	111	32	34	46	48	186	193
	2022	94	100	44	47	43	43	181	190
	2023	58	62	31	38	28	30	117	130
	2024	63	64	25	31	31	31	119	126

Note : i) Figures for the year 2024 are provisional.
ii) Persons seriously injured from fatal accidents are also considered for computation of no. of serious injury as well as for serious injury rate.

3.0 Non-Coal Mines

3.1 General

Information presented in the following paragraphs related to non-coal mines coming under the purview of the Mines Act, 1952.

Estimated number of notified working non-coal mines are over about 19500 out of which 2777 non-coal mines including 77 oil mines submitted returns for the year 2024.

Average daily employment in non-coal mines during the year 2024 was 246504. Average daily employment in workings belowground, opencast and aboveground during the year 2024 was 20960, 136144 and 89458 respectively. The average daily employment in various minerals is depicted in the table below.

TABLE – 34	**Average daily employment and output in non-coal mines during 2024**					
Mineral	**No. of Mines Submitted Return**	**Average daily employment**				**Output (`000 tonnes)**
		B/G	**O/C**	**Surface/ aboveground**	**Total**	
Bauxite	69	0	4428	6218	10646	23839
Copper	5	2961	213	428	3603	3545
Gold	5	1558	21	1654	3233	691
Granite	275	0	4837	938	5774	3813
Limestone	550	28	18484	7770	26282	452454
Iron-Ore	157	0	84119	32681	116741	271273
Manganese	62	3801	3856	4653	12309	2975
Marble	121	16	1335	256	1607	3257
Stone	370	0	3797	639	4437	49127
Barytes	2	-	589	596	1185	2999
Dolomite	59	-	681	472	1153	6652
Mica, Quartz & Feldspar	102	38	1575	94	1707	2528
Others	923	12558	12209	9693	34461	166392
Oil & Gas	77	0	0	23366	23366	14305 (OIL) 9709 (GAS)
Total Non-Coal	**2777**	**20960**	**136144**	**89458**	**246504**	**977364****

Production of Natural Gas (Expressed in Million Cu-Meter)
** The figure excludes the production of gas
Note : Data for the year 2024 are provisional.

3.2 Accidents

3.2.1 Accidents

There was one major accident in non-coal mines during the year 2024. The details of which are as follows:

- Name of Mine :- Pahara Stone Mine
- Date of Accident :- 12/03/2024
- Time of Accident :- 12:30 PM
- No. of Persons :-

  Killed :- 4 Seriously Injured :- 0
- Cause of Accident :-

  While Drillers and Excavator Operators and Helpers were deployed at the bed of quarry and a stone bench of an opencast stone mine having high and almost vertical single bench on north eastern side, suddenly a huge rock mass of size measuring about 33m (in length) x 53m (in height) x 5m to 6m (in thickness) parted from north-eastern side from a height of about 20 to 73 m and buried the men and machineries deployed at the quarry floor and stone bench that resulted into death of four workmen almost on the spot.

There had been increase in fatal accidents in the year 2024 wherein 33 fatal accidents involving 40 fatalities as compared to 28 fatal accidents involving 33 fatalities during 2023. Whereas the number of serious accidents during the year 2024 has decreased to 31 serious accidents as compared to 35 serious accidents during 2023. Table 35 & 36 given below shows trend in fatal accidents, death rates, serious accidents and injury rate in non-coal mines.

Table: 35 TREND IN FATAL ACCIDENTS & DEATH RATES IN NON-COAL MINES

Year	Fatal Accidents			Death rate per 1000 persons employed			
	No. of Accidents	Persons killed	Persons Ser. Injured	Below ground	Open-cast	Above ground	Overall
2013	58	74	15	0.39	0.55	0.11	0.35
2014	39	45	10	0.36	0.29	0.15	0.24
2015	45	48	13	0.29	0.29	0.11	0.22
2016	39	50	10	0.22	0.30	0.13	0.23
2017	42	63	11	0.22	0.44	0.09	0.29
2018	45	51	12	0.44	0.34	0.06	0.23
2019	45	54	10	0.58	0.28	0.14	0.25
2020	40	50	8	0.22	0.29	0.14	0.23
2021	33	50	6	0.36	0.20	0.23	0.23
2022	40	54	13	0.58	0.36	0.04	0.25
2023	28	33	7	0.22	0.23	0.02	0.15
2024	33	40	23	0.80	0.22	0.03	0.18

Note : i) Figures for the year 2024 are provisional.

Table: 36 indicate trend in serious accidents and serious injury rates in non-coal mines.

TABLE:36	TREND IN SERIOUS ACCIDENTS AND SERIOUS INJURY RATES IN NON-COAL MINES					
Year	Serious Accidents		Serious injury rate per 1000 persons employed			
	No. of Accidents	Persons seriously injured#	Below-ground	Opencast	Above-ground	Overall
2013	52	68	0.39	0.55	0.11	0.35
2014	44	60	0.36	0.29	0.15	0.24
2015	35	51	0.29	0.29	0.11	0.22
2016	37	48	0.20	0.61	0.08	0.21
2017	22	39	0.20	0.26	0.08	0.17
2018	26	38	0.20	0.45	0.06	0.16
2019	58	70	0.55	0.42	0.13	0.30
2020	24	33	0.17	0.39	0.05	0.14
2021	45	52	0.32	0.35	0.10	0.22
2022	48	65	0.46	0.52	0.11	0.28
2023	35	43	0.41	0.19	0.06	0.19
2024	31	59	0.23	0.36	0.08	0.26

Includes persons seriously injured from serious accidents only

Note : i) Persons seriously injured during fatal accidents are also considered for computation of serious injury rate.

ii) Accident Figures for the year 2024 are provisional.

Table: 37 depicts trend in accidents due to different cause group for the years 2020-2024.

TABLE:37	TREND IN FATAL ACCIDENTS DUE TO DIFFERENT CAUSES IN NON-COAL MINES				
Cause	**2020**	**2021**	**2022**	**2023**	**2024***
Ground movement	8 (15)	11 (19)	13 (26)	6 (8)	11 (17)
Winding in shafts	-	-	2 (2)	-	1 (1)
Transportation machinery (other than winding)	10 (11)	4 (4)	7 (7)	7 (9)	5 (5)
Machinery other than transportation machinery	5 (5)	4 (4)	1 (1)	4 (4)	3 (3)
Explosive	-	5 (14)	1 (1)	4 (5)	3 (3)
Electricity	2 (2)	1 (1)	-	-	1 (1)
Gas, Dust etc.	2 (3)	-	-	-	-
Falls other than fall of ground	11 (12)	5 (5)	12 (13)	5 (5)	8 (9)
Other causes	2 (2)	3 (3)	4 (4)	2 (2)	1 (1)
Total	**40 (50)**	**33 (50)**	**40 (54)**	**28 (33)**	**33 (40)**

Note: Figures in parentheses denote the number of persons killed.
* Figures are provisional

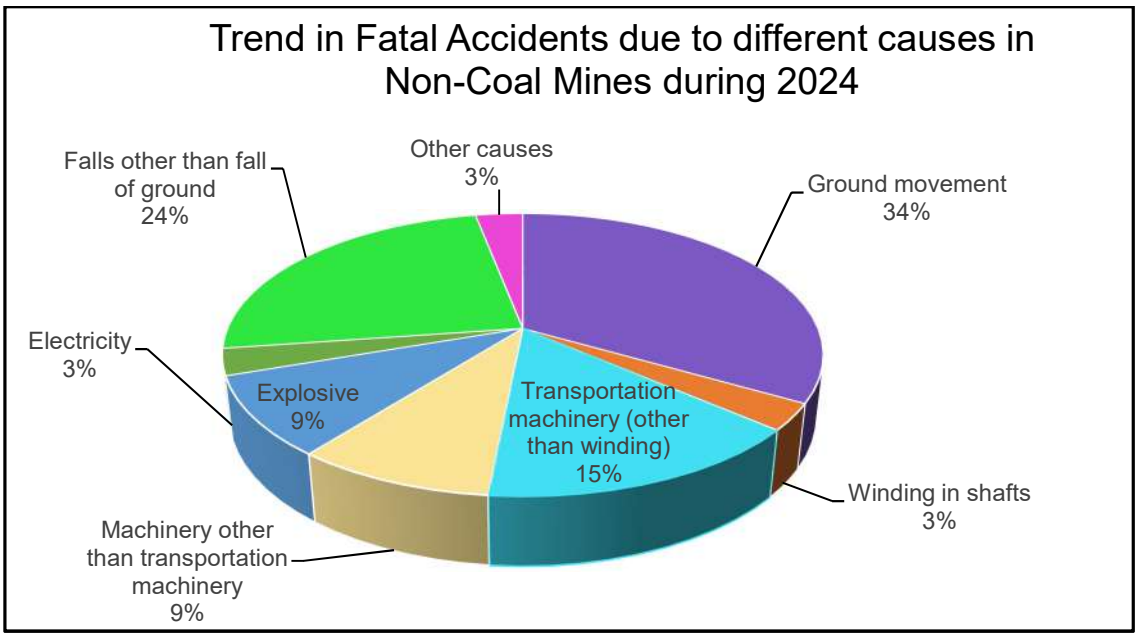


TABLE:37A	TREND IN FATAL ACCIDENTS IN DIFFERENT PLACES OF NON-COAL MINES				
Place	**2020**	**2021**	**2022**	**2023**	**2024***
Belowground	2 (3)	4 (5)	8 (8)	3 (3)	9 (11)
Opencast	26 (34)	17 (24)	28 (42)	18 (23)	20 (25)
Aboveground	12 (13)	12 (21)	4 (4)	7 (7)	4 (4)
Total	**40 (50)**	**33 (50)**	**40 (54)**	**28 (33)**	**33 (40)**

Note: Figures in parentheses denote the number of persons killed.
* Figures are provisional

TABLE: 38	TREND IN SERIOUS ACCIDENTS DUE TO DIFFERENT CAUSES IN NON-COAL MINES				
Cause	**2020**	**2021**	**2022**	**2023**	**2024***
Ground movement	0 (4)	1 (5)	2 (9)	1 (2)	2 (10)
Winding in shafts	-	1 (1)	0 (1)	1 (1)	0 (13)
Transportation machinery (other than winding)	2 (4)	5 (5)	8 (8)	2 (3)	3 (5)
Machinery other than transportation machinery	2 (2)	8 (9)	5 (5)	4 (4)	6 (6)
Explosive	1 (1)	0 (1)	0 (1)	0 (2)	1 (2)
Electricity	1 (1)	-	1 (1)	2 (2)	-
Gas, Dust etc.	-	-	1 (1)	-	-
Falls other than fall of ground	12 (15)	12 (12)	11 (16)	13 (14)	13 (13)
Other causes	6 (6)	18 (19)	20 (23)	12 (15)	6 (10)
TOTAL	24 (33)	45 (52)	48 (65)	35 (43)	31 (59)

Note: Figures in parentheses denote the number of persons seriously injured. This also includes serious injury out of fatal accidents.
* Figures are provisional

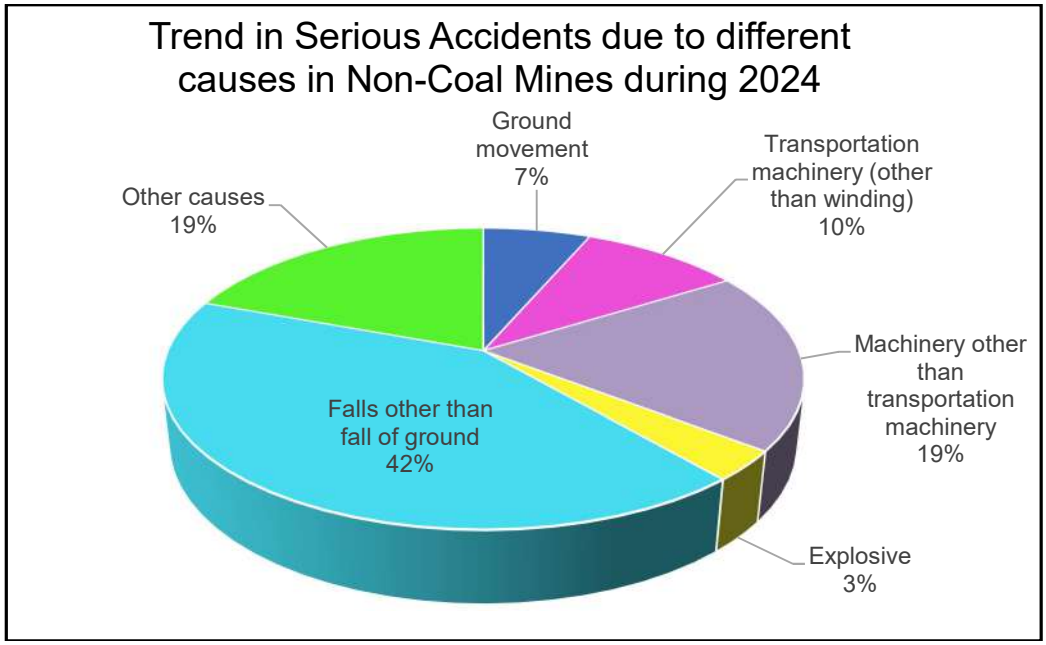


TABLE: 38A	TREND IN SERIOUS ACCIDENTS IN DIFFERENT PLACES OF NON-COAL MINES				
Place	**2020**	**2021**	**2022**	**2023**	**2024***
Belowground	4 (6)	11 (11)	13 (16)	15 (20)	7 (25)
Opencast	6 (12)	6 (11)	6 (16)	4 (6)	6 (10)
Aboveground	14 (15)	28 (30)	29 (33)	16 (17)	18 (24)
Total	24 (33)	45 (52)	48 (65)	35 (43)	31 (59)

Note: Figures in parentheses denote the number of persons seriously injured.
* Figures are provisional

Table: 39 shows fatal and serious accidents mineral-wise for the year 2020-2024

TABLE: 39	FATAL AND SERIOUS ACCIDENTS MINERAL-WISE IN NON-COAL MINES DURING 2020-2024									
Mineral	**Fatal accidents**					**Serious accidents**				
	2020	**2021**	**2022**	**2023**	**2024***	**2020**	**2021**	**2022**	**2023**	**2024***
Copper	-	-	2	2	1	1	-	6	2	-
Galena & sphalerite	-	2	2	-	2	3	8	3	5	1
Gold	1	-	1	-	1	1	5	6	3	2
Iron-ore	7	5	2	3	4	8	11	12	8	11
Lime stone	1	3	1	3	1	1	5	2	-	2
Manganese ore	3	1	2	2	5	-	1	5	5	3
Oil	7	3	3	-	1	8	10	7	8	4
Stone	12	8	13	8	14	-	-	2	-	1
Others	9	11	14	10	4	2	5	5	4	7
TOTAL	**40**	**33**	**40**	**28**	**33**	**24**	**45**	**48**	**35**	**31**

* Provisional.

3.2.2 Analysis of Accidents

The analysis of accidents presented below is based on the findings of enquiries into fatal accidents conducted by officers of DGMS and information regarding serious accidents received from the mine management.

3.2.2.1 Ground Movement

Number of accidents and fatalities due to Ground Movement shows a matter of concern of the trend in the last five years indicating that it is the high time for the mine management to think and execute an effective plan to reduce fatal accidents due this cause. Percentage wise there were 11 (33.33% of the total) fatal accidents due to Ground Movement in the year 2024 as compared to 6 (21.42% of the total) fatal accidents due to Ground Movement in the year 2023.

3.2.2.1.A Roof fall Accidents

There were Three fatal accidents recorded due to roof fall during the year 2024 in non-coal mines involving 4 fatalities.

3.2.2.1.B Side fall Accidents

Eight fatal accidents resulting 13 fatalities were recorded due to side fall during the year 2024 in non-coal mines.

3.2.2.2 Transportation machinery (Winding)

One fatal accident reported due to transportation machinery (winding) causing one fatality during the year 2024.

3.2.2.3 Transportation machinery (other than winding)

There were altogether five fatal accidents involving five fatalities due to transportation machinery (other than winding) during the year, 2024.

TABLE-40	FATAL ACCIDENTS DUE TO TRANSPORTATION MACHINERY IN NON-COAL MINES IN YEAR 2024		
Sl. No.	**Causes**	**Fatal**	**Persons Killed**
1.	Rope Haulages	-	-
2.	Conveyors	1	1
3	Dumpers	3	3
4	Wheeled Trackless (Truck, Tanker etc.)	1	1
5.	Others	-	-
	Total	**5**	**5**

Note : Figures are provisional.

Rope Haulage:

No accident occurred due to rope haulage.

Conveyor:

One accident occurred causing one fatality due to Conveyor contributing 20% of total accidents due to Transportation Machinery.

Dumpers/Tipper;

Three accidents occurred causing 3 fatalities due to Dumpers contributing 60% of total accidents due to Transportation Machinery.

Truck & Tanker:

One accident occurred causing one fatality due to truck & tanker contributing 20% of total accident due to Transportation Machinery.

Other (Wagon):

No accident occurred due to this cause.

3.2.2.4 Transportation machinery (other than winding)

It is seen that most of the accident due to machinery and other machinery were causing due to operator's negligence, indiscipline and lack of supervision. Improved standard of training and education of workers are necessary to control such accidents. In some cases the equipment failure was observed due to poor maintenance. Higher standard of maintenance of machinery in the opencast sector is required to be stressed upon.

TABLE-41	**BREAK UP OF SERIOUS & FATAL ACCIDENTS DUE TO MACHINERY OTHER THAN TRANSPORTATION MACHINERY IN NON-COAL MINES DURING 2024**		
Sl. No.	**Causes**	**No. of fatal accidents**	**Persons killed**
1.	Drilling Machine	-	-
2.	Cutting Machines	-	-
3.	Loading Machine	2	2
4.	Shovels etc.	-	-
5.	Crushing & Screening Plant	-	-
6.	Other HEMM	-	-
7.	Others Non-Transportation Machinery	1	1
Total		**3**	**3**

Note : Figures are provisional.

Table: 42 - Detail break-up of serious accidents due machinery other than transport machinery in non-coal mines during 2024.

TABLE: 42	**BREAK-UP OF SERIOUS ACCIDENTS DUE TO MACHINERY OTHER THAN TRANSPORTATION MACHINERY IN NON-COAL MINES DURING 2024**			
Cause	**Number of serious accidents**			
	Belowground	**Opencast**	**Aboveground**	**Total**
Drilling Machine	-	-	-	-
Cutting Machines	-	-	-	-
Loading Machine	-	-	-	-
Shovels, draglines, excavators etc.	-	1		1
Crushing & screening plants	-	-	-	-
Other HEMM	-	-	-	-
Others	-	-	1	1
TOTAL	**-**	**1**	**1**	**2**

Note : Figures are provisional.

3.2.2.5 Explosives

There were 03 fatal accidents occurred involving 03 fatalities and 01 serious accident occurred due to explosive during the year 2024.

3.2.2.6 Electricity

There was one fatal accident occurred involving one fatality due to electricity during the year 2024.

3.2.2.7 Dust, Gas & other combustible material

No fatal accident was reported due to dust, gas and fire during the year 2024.

3.2.2.8 Falls other than falls of ground

There were 8 fatal accidents involving 9 fatalities and 13 serious accidents involving 13 injured due to this cause during the year 2024.

3.2.2.9 Other causes

There were 1 fatal and 6 serious accidents occurred causing 1 fatality and 10 serious injuries respectively during the year 2024 due to miscellaneous causes.

3.3 Responsibility

The responsibilities fixed as a result of fatal accident enquiry conducted by officers of DGMS in the year 2024 is indicated in the table below:

TABLE:43	RESPONSIBILITY FOR FATAL ACCIDENTS IN NON-COAL MINES DURING THE YEAR 2024	
Sl. No.	**Responsibility**	**No. of accidents**
1.	Misadventure	-
2.	Management	11
3.	Management, Subordinate Supervisory Staff (SSS)	7
4.	Management, SSS & Co-worker	-
5.	Management, SSS & Shotfirer	1
6.	Management, SSS & Deceased	-
7.	Management & Co-worker	2
8.	Management & Contractor's Worker	1
9.	Management & Deceased	-
10.	Subordinate Supervisory Staff (SSS)	2
11.	Subordinate Supervisory Staff (SSS) & Deceased	1
12.	Subordinate Supervisory Staff (SSS), Deceased & Outsider	1
13.	Co-Worker	-
14.	Co-Worker & Deceased	1
15.	Deceased	-
16.	Others	6
	TOTAL	**33**

Note : Figures are provisional.

3.4 Dangerous Occurrence

The table indicated below gives dangerous occurrences reported during the year 2024 under various causes:

TABLE:44	DANGEROUS OCCURRENCES IN NON-COAL MINES DURING 2024	
Sl. No.	**Cause**	**No. of cases**
1.	Overwinding of cages, skip of bucket etc.	1
2.	Outbreak of fire belowground	-
3.	Outbreak of fire on surface	-
4.	Premature collapse of workings or failure of pillars	-
5.	Breakage of winding rope	-
6.	Breakdown of winding engine, crank shaft, bearing etc.	-
7.	Ignition or occurrence of inflammable gas	-
8.	Breakage, fracture etc. of essential parts of machinery or apparatus whereby safety of persons was endangered	2
9.	Rock burst	1
10.	Irruption of water	-
11.	Bursting of equipment under high pressure	-
12.	Oil well blowout without fire	-
13.	Fire in pipeline/well heads	-
14.	Others	2
	Total	**6**

Note : Figures are provisional.

3.5 Technical Developments

In 2024, total numbers of mines working by deploying HEMM was 2843. Total number of machines and capacity of machinery used in mines have been increased during 2024. The following table shows the different types of machines deployed in mines since 2016.

TABLE- 45		TREND IN USE OF HEMM IN NON-COAL OPENCAST MINE									
Year	**No. of Mines**	**Material Transport**	**Other Transport**	**Cutting/ Ripping/ Shearing**	**Drilling Machine**	**Loading Machine**	**Compressors**	**Conveyors**	**Other Machinery**	**Machinery**	
										Total No.	**Total HP**
2016	899	4599	1193	828	708	1516	605	905	1534	11888	2565412
2017	1104	5268	682	947	825	1875	801	915	1721	13034	2846503
2018	1359	7679	1145	1318	1111	2799	1080	1653	2834	19619	3192276
2019	1755	10140	1259	1476	1400	11191	1337	1622	3405	31830	3462190
2020	2304	13403	1665	2142	1789	4666	1694	2105	3941	31405	4393593
2021	3146	14727	1949	3051	2173	5395	2156	2586	6625	38662	4963794
2022	4561	16212	2356	2682	2951	6428	2671	3046	7396	43742	5301275
2023	5304	17871	2829	2994	3502	7090	3223	3744	8331	49584	5707800
2024	2843	11144	1711	2566	2014	4441	1930	2111	5568	31485	6255659

Note : Figures are provisional.

Following table shows the types of explosives used in non-coal mines since 2016.

TABLE:46	TREND IN USE OF EXPLOSIVES IN NON-COAL MINES			
Year	Explosives (in '000 Kg)			Total Detonators
	Permitted	Non-Permitted	Total	
2016	28224	50255	79079	10072189
2017	27587	60234	87911	8168445
2018	28704	74492	103196	9848521
2019	34200	80717	114917	15734367
2020	36479	89187	125666	10578744
2021	39291	108920	148211	14092017
2022	44416	117963	162379	15090156
2023	42091	140349	182441	19328611
2024	46868	141551	188419	13735063

Note : Figures are provisional.

3.6 Occupational Health & Environments

(a) Progress of Medical Examination in Non-Coal Mines:

TABLE : 47 PROGRESS OF INITIAL & PERIODICAL MEDICAL EXAMINATION DURING 2024 IN NON-COAL MINES

Name of Company	Initial Medical Examination		Periodical Medical Examination	
	Required	Provided	Required	Provided
ESSAR	387	387	0	0
FOCUS ENERGY	175	175	0	0
KIRI OIL FIELD	12	12	12	12
OIL	544	544	1913	1845
ONGC	2241	2233	3392	3048
RIL	659	659	1212	1212
ACC	167	167	153	292
AMBUJA CEMENT	81	81	78	186
AMNS INDIA	175	175	61	61
APMDC LTD	85	85	135	135
ASTHA INFRA	99	76	55	42
AURO MINERALS	39	22	0	0
BASANTH NAGAR LIMESTONE	45	45	36	36
BIRLA CORP	91	91	290	290
BKG MINING	31	31	41	41
BTC CO.	43	0	43	0
CALCOM CEMENT	34	34	41	26
CCI	20	20	22	21
CHETTINAD CEMENT	130	129	31	31
COSMOS CEMENT	71	22	5	5
DALMIA CEMENT	425	419	387	513
ESL STEEL	117	117	19	19
FACOR	0	242	33	22
GMDC	33	33	12	12
GOGTE MINERALS	35	35	28	28
HCL	3003	3102	2383	2467
HGML	172	172	476	445
Hindalco	107	107	450	598
HSSIDC	218	218	0	0
HZL	300	300	2805	2176
ICL	64	64	56	56
IMFA	380	380	339	339
INDIA CEMENT	148	148	29	29
IREL	55	55	179	179
J K CEMENT	40	40	10	10
J K LAKSHMI CEMENT	112	112	42	42
JAYASWAL NECO INDUSTRIES	379	379	345	345
JINDAL	110	110	124	124
JINDAL SAW	765	765	0	560

Name of Company	Initial Medical Examination		Periodical Medical Examination	
	Required	Provided	Required	Provided
JK CEMENT	54	54	22	43
JSW	1307	1304	130	121
KASHVI INTERNATIONAL	212	212	0	0
Manmohan Singh Badana	99	76	55	42
MEGHALAYA CEMENT	70	62	0	0
MIVAAN STEELS	232	232	0	0
MOIL	2732	2706	977	1262
MSPL	54	54	51	51
NALCO	118	118	922	922
NARBHERAM POWER	69	69	21	21
NEELANCHAL ISPAT	319	319	0	0
NIMAWAT GRANITE	96	68	49	37
NMDC	864	864	1161	1189
NUVOCO	44	44	469	699
OMCL	2789	2789	1748	1825
PRISM JOHNSON	42	42	86	86
RAMCO CEMENT	85	85	105	105
RS-KSM RESOURCES	57	57	19	19
RSMML	658	658	71	71
RSSPL	19	19	62	62
SAGAR CEMENT	15	15	0	0
SAIL	2228	2222	2668	2547
SANDUR MANAGANESE	452	452	860	834
SHIVA CEMENT	89	89	35	141
SHREE CEMENT	121	121	343	352
SOUTH WEST MINING	82	82	27	27
TAMILNADU MAGNESITE	194	194	123	123
TATA	3643	4366	401	401
TIRUPATI VINIYOG	98	74	48	40
UCIL	972	972	1531	1558
UDAIPUR CEMENT	221	221	3	7
ULTRATECH	568	568	903	1222
UNITED MINING CORP	64	64	15	15
UTKAL ALUMINA	203	203	140	140
VEDANTA	7262	7231	973	943
WONDER CEMENT	70	70	28	28
WONDER MARBLE	78	60	0	0
ZUARI CEMENT	53	53	34	34
Others	1723	1642	2456	2456
Total	**39648**	**40317**	**31773**	**32670**

b) Cases of Notified Diseases in non-coal mines:

TABLE: 48	CASES OF NOTIFIED DISEASES IN COAL MINES DURING THE YEAR 2024	
Mining Companie(s)	**Name of Disease**	**Number of cases**
NIL		

3.7 Vocational Training

Progress of vocational training imparted during the year in major non-coal mining companies has been reported in table below:

Table : 49 PROGRESS OF VOCATIONAL TRAINING IN NON-COAL MINES DURING THE YEAR 2024

Name of Company	No. of VT centers	Basic Training		Refresher Training		Special Training Provided
		Required	Provided	Required	Provided	
OIL	9	976	982	611	663	643
ONGC	17	1716	1850	1447	731	123
ACC	5	204	204	88	106	0
AMBUJA	5	86	85	78	198	76
AMNS INDIA LTD	0	258	258	0	0	0
APMDC	1	208	208	61	61	36
ASD - RKC JV	1	96	96	0	0	26
CHETTINAD CEMENT	4	124	113	11	9	0
COSMOS	1	63	57	0	0	57
Dalmia Cement (Bharat) Limited	7	453	453	222	222	1264
FACOR	1	297	297	21	21	4
GMDC	3	32	32	12	12	0
Godawari Power & Ispat Ltd.	1	55	55	278	197	1
HCL	6	787	1254	1256	1256	5264
HGML	1	404	390	204	204	123
HINDALCO	3	261	261	557	620	149
HSIIDC Limited	1	88	88	0	0	62
HZL	1	52	52	106	106	584
IMFA	2	248	248	241	241	37
India Cements Ltd	4	120	91	37	37	11
Insfrastructure Lotistics Pvt. Ltd.	1	80	80	39	39	0
IREL	1	7	7	120	120	0
JINDAL	1	102	102	8	8	8
Jindal Saw Limited	0	765	765	0	0	0
JK LAKSHMI	1	76	76	0	0	0
JSPL	1	89	89	0	0	0
JSW	1	2062	2062	238	207	67
Kerala Mines Group Vocational Training Centre	1	0	151	0	2	0
Lloyds Metals and Energy Ltd.	1	504	577	0	0	185
Mivaan Steels Ltd	1	210	210	0	0	0
MML	2	38	38	151	155	48
MOIL	4	2161	2849	1297	1178	4243
MSMC	3	56	56	0	0	16
NALCO	2	163	163	193	193	48
Narbheram Power And Steel Pvt Ltd	0	111	111	0	0	0
NECO	1	591	591	98	77	0

Name of Company	No. of VT centers	Basic Training		Refresher Training		Special Training Provided
		Required	Provided	Required	Provided	
Neelachal Ispat Nigam Ltd.	1	319	319	0	0	15
NMDC	4	895	895	566	566	831
NUVOCO	5	60	75	85	171	106
OMCL	5	2535	2448	653	580	229
Prism Johnson Limited.	1	78	78	83	83	20
RAMCO CEMENT	2	55	55	63	63	0
RCCPL PVT LTD	2	111	96	41	34	67
SAIL	10	1101	1379	1373	1424	259
Sandur Manganese and Iron Ores Limited	1	392	593	631	400	0
Shiva Cement Limited	1	101	101	113	180	80
Shree Cement Ltd.	7	106	108	210	218	43
Shri Bajrang Power and Ispat Limited	1	340	340	0	0	0
South West Mining Limited	1	78	78	2	2	0
Tamilnadu Magnesite Limited	0	194	160	123	0	0
TATA	4	7053	7066	236	329	3648
UCIL	7	347	793	1166	951	1235
UltraTech	15	438	515	321	387	166
Utkal Alumina International Limited.	1	122	122	56	56	28
VEDANTA	1	140	85	0	0	0
Others	50	3363	3457	2005	1739	397
Total	**213**	**31371**	**33764**	**15101**	**13846**	**20199**

3.8 Workmen's Inspector, Welfare Officer & Safety Committee

Table : 50	NUMBER OF WORKMEN'S INSPECTOR IN POSITION, SAFETY COMMITTEE, WELFARE OFFICERS IN NON-COAL MINES DURING 2024

Name of Company	Welfare Officers		Workmen Inspectors		Safety Committee	
	Required	Provided	Required	Provided	Required	Provided
OIL	8	8	14	24	10	10
ONGC	13	13	126	166	50	49
ACC	1	1	13	16	6	9
Birla Corp.	2	2	6	6	2	2
Chettinad Cement	0	0	3	3	9	9
Dalmia Cement	2	2	19	16	6	6
ESL Steel	0	0	6	6	2	2
Gagal Limestone	1	1	3	3	1	1
Ghanshyam Mishra	1	1	3	3	1	1
GMDC	1	1	4	4	13	13
Godawari Power	1	1	3	3	1	1
Gogate Minerals	1	1	1	1	1	1
HCL	5	5	15	15	5	5
HGML	4	5	12	12	3	3
Hindalco	1	1	17	16	12	12
HZL	2	3	7	8	1	1
Indian Metal & Ferro Alloys	2	2	6	6	2	2
IREL	3	3	6	6	3	3
J K Lakshmi Cement	0	0	4	4	2	2
Jayaswal Neco	1	1	6	6	3	3
JK Cement	2	2	18	18	7	7
JSW Steel Ltd	9	10	27	27	9	9
MOIL	11	11	33	33	11	11
MSPL	0	0	9	12	4	4
NALCO	2	2	4	4	2	2
NMDC	5	5	20	21	5	5
Nuvoco	2	2	11	13	8	8
Odisha Mining	16	17	47	48	17	17
SAIL	18	15	52	56	17	17
Sandur Manganese	3	3	11	8	4	4
Shree Cement	4	4	15	18	31	36
Tata Steel	6	6	29	29	7	7
UCIL	8	8	23	23	7	7
Ultratech	8	8	58	59	40	42
VEDANTA	4	4	25	25	22	28
Others	40	47	166	192	165	205
Total	**187**	**195**	**822**	**910**	**489**	**544**

3.9 Mineral wise consolidated fatal accident statistics for the last 8 (eight) years in non-coal mines

MINERAL	YEAR	FATAL ACCIDENTS							
		BELOWGROUND		OPENCAST		ABOVEGROUND		TOTAL	
		ACCIDENT	KILLED	ACCIDENT	KILLED	ACCIDENT	KILLED	ACCIDENT	KILLED
Oil	2017	0	0	0	0	1	1	1	1
	2018	0	0	0	0	2	2	2	2
	2019	0	0	0	0	5	10	5	10
	2020	0	0	0	0	7	8	7	8
	2021	0	0	0	0	3	3	3	3
	2022	0	0	0	0	3	3	3	3
	2024	0	0	0	0	1	1	1	1
Apatite & Rock Phosphate	2018	0	0	1	1	0	0	1	1
	2023	0	0	1	1	0	0	1	1
	2024	0	0	1	1	0	0	1	1
Asbestos	2017	0	0	2	2	0	0	2	2
Atomic Mineral	2018	1	2	0	0	0	0	1	2
	2021	1	1	0	0	1	1	2	2
	2022	1	1	0	0	0	0	1	1
Barytes	2019	0	0	1	1	0	0	1	1
	2021	0	0	0	0	1	10	1	10
Bauxite	2017	0	0	0	0	1	1	1	1
	2020	0	0	1	1	0	0	1	1
China Clay,clay,white-clay	2018	0	0	1	1	0	0	1	1
	2021	0	0	1	2	0	0	1	2
Chromite	2017	0	0	1	1	0	0	1	1
	2020	0	0	1	1	0	0	1	1
	2021	0	0	0	0	1	1	1	1
	2022	0	0	1	1	0	0	1	1
	2023	0	0	0	0	1	1	1	1
Copper	2018	0	0	1	1	0	0	1	1
	2019	3	3	0	0	0	0	3	3
	2022	2	2	0	0	0	0	2	2
	2023	1	1	0	0	1	1	2	2
	2024	1	1	0	0	0	0	1	1
Galena & Sphalarite	2017	0	0	0	0	2	5	2	5
	2018	3	3	0	0	1	1	4	4
	2019	0	0	0	0	1	1	1	1
	2021	2	3	0	0	0	0	2	3
	2022	2	2	0	0	0	0	2	2
	2024	2	3	0	0	0	0	2	3
Gold	2019	1	1	0	0	0	0	1	1
	2020	0	0	0	0	1	1	1	1
	2022	1	1	0	0	0	0	1	1
	2024	1	1	0	0	0	0	1	1

MINERAL	YEAR	FATAL ACCIDENTS							
		BELOWGROUND		OPENCAST		ABOVEGROUND		TOTAL	
		ACCIDENT	KILLED	ACCIDENT	KILLED	ACCIDENT	KILLED	ACCIDENT	KILLED
Granite	2017	0	0	4	8	0	0	4	8
	2018	0	0	6	6	0	0	6	6
	2019	1	1	9	9	1	1	11	11
	2020	0	0	4	4	0	0	4	4
	2021	0	0	3	4	0	0	3	4
	2022	0	0	5	5	0	0	5	5
	2023	0	0	5	6	1	1	6	7
	2024	0	0	1	1	0	0	1	1
Iron	2017	0	0	3	4	0	0	3	4
	2018	0	0	3	4	1	1	4	5
	2019	0	0	3	3	1	1	4	4
	2020	0	0	4	4	3	3	7	7
	2021	0	0	1	2	4	4	5	6
	2022	0	0	2	2	0	0	2	2
	2023	0	0	2	4	1	1	3	5
	2024	0	0	2	2	2	2	4	4
Limestone	2017	1	1	4	5	0	0	5	6
	2018	0	0	2	2	0	0	2	2
	2019	0	0	6	6	0	0	6	6
	2020	0	0	1	1	0	0	1	1
	2021	0	0	1	1	2	2	3	3
	2022	0	0	1	3	0	0	1	3
	2023	0	0	2	2	1	1	3	3
	2024	0	0	1	1	0	0	1	1
Manganese	2017	2	2	1	2	0	0	3	4
	2018	1	1	0	0	0	0	1	1
	2019	3	3	0	0	0	0	3	3
	2020	2	3	1	2	0	0	3	5
	2021	1	1	0	0	0	0	1	1
	2022	1	1	1	1	0	0	2	2
	2023	1	1	0	0	1	1	2	2
	2024	5	6	0	0	0	0	5	6
Marble	2017	0	0	4	6	1	1	5	7
	2018	0	0	8	9	1	1	9	10
	2019	0	0	1	1	0	0	1	1
	2020	0	0	1	1	0	0	1	1
	2021	0	0	2	2	0	0	2	2
	2022	0	0	5	6	0	0	5	6
	2024	0	0	1	1	0	0	1	1
Quartz	2019	0	0	1	1	0	0	1	1
	2023	0	0	1	2	0	0	1	2
Rhyolite	2017	0	0	1	1	0	0	1	1
Sandstone	2020	0	0	1	1	0	0	1	1

MINERAL	YEAR	FATAL ACCIDENTS							
		BELOWGROUND		OPENCAST		ABOVEGROUND		TOTAL	
		ACCIDENT	KILLED	ACCIDENT	KILLED	ACCIDENT	KILLED	ACCIDENT	KILLED
	2024	0	0	1	1	0	0	1	1
Silica	2020	0	0	0	0	1	1	1	1
Sillimanite	2022	0	0	0	0	1	1	1	1
Slate	2018	0	0	1	2	0	0	1	2
Steatite	2018	0	0	1	1	0	0	1	1
	2021	0	0	1	1	0	0	1	1
	2022	1	1	0	0	0	0	1	1
	2023	1	1	0	0	0	0	1	1
Stone	2017	0	0	14	23	0	0	14	23
	2018	0	0	11	13	0	0	11	13
	2019	0	0	8	12	0	0	8	12
	2020	0	0	12	19	0	0	12	19
	2021	0	0	8	12	0	0	8	12
	2022	0	0	13	24	0	0	13	24
	2023	0	0	7	8	1	1	8	9
	2024	0	0	13	18	1	1	14	19
Total	**2017**	**3**	**3**	**34**	**52**	**5**	**8**	**42**	**63**
	2018	**5**	**6**	**35**	**40**	**5**	**5**	**45**	**51**
	2019	**8**	**8**	**29**	**33**	**8**	**13**	**45**	**54**
	2020	**2**	**3**	**26**	**34**	**12**	**13**	**40**	**50**
	2021	**4**	**5**	**17**	**24**	**12**	**21**	**33**	**50**
	2022	**8**	**8**	**28**	**42**	**4**	**4**	**40**	**54**
	2023	**3**	**3**	**18**	**23**	**7**	**7**	**28**	**33**
	2024	**9**	**11**	**20**	**25**	**4**	**4**	**33**	**40**

Note : Figures for the year 2024 are provisional.

3.10 Mineral wise consolidated serious accident statistics for the last 8 (eight) years in non-coal mines

MINERAL	YEAR	SERIOUS ACCIDENTS							
		BELOWGROUND		OPENCAST		ABOVEGROUND		TOTAL	
		Accident	S/Inj.	Accident	S/Inj.	Accident	S/Inj.	Accident	S/Inj.
Oil	2017	0	0	0	0	9	13	9	13
	2018	0	0	1	1	3	5	4	6
	2019	0	0	0	0	18	19	18	19
	2020	0	0	1	1	7	8	8	9
	2021	0	0	0	0	10	10	10	10
	2022	0	0	0	0	7	7	7	7
	2023	0	0	0	0	8	8	8	8
	2024	0	0	0	0	4	4	4	4
Atomic Mineral	2019	1	1	0	0	1	1	2	2
	2021	1	1	0	0	1	1	2	2
	2024	4	5	0	0	1	1	5	6
Bauxite	2017	0	0	0	0	0	1	0	1
Chromite	2017	1	1	0	0	0	0	1	1
	2018	0	0	0	0	2	2	2	2
	2021	0	0	1	1	0	1	1	2
	2022	0	0	0	0	1	1	1	1
	2023	2	2	0	0	1	1	3	3
	2024	1	1	0	0	0	0	1	1
Copper	2017	1	1	1	1	0	0	2	2
	2018	1	1	1	2	0	0	2	3
	2019	3	3	0	0	0	0	3	3
	2020	1	1	0	0	0	0	1	1
	2022	4	6	0	0	2	2	6	8
	2023	2	5	0	0	0	0	2	5
	2024	0	13	0	0	0	0	0	13
Dolomite	2018	0	0	0	0	1	1	1	1
	2022	0	0	0	0	2	2	2	2
Galena & Sphalarite	2017	1	1	0	0	2	4	3	5
	2018	2	3	0	0	3	3	5	6
	2019	7	7	1	1	7	7	15	15
	2020	2	3	0	0	1	1	3	4
	2021	5	5	1	1	2	2	8	8
	2022	3	3	0	0	0	0	3	3
	2023	4	4	0	0	1	1	5	5
	2024	0	0	0	0	1	1	1	1
Gold	2017	1	1	0	0	0	0	1	1
	2018	1	1	2	2	0	0	3	3
	2019	5	6	0	0	0	0	5	6
	2020	1	1	0	0	0	0	1	1
	2021	4	4	0	0	1	1	5	5
	2022	2	3	0	0	4	4	6	7
	2023	2	2	0	0	1	1	3	3
	2024	1	3	0	0	1	1	2	4

MINERAL	YEAR	SERIOUS ACCIDENTS							
		BELOWGROUND		OPENCAST		ABOVEGROUND		TOTAL	
		Accident	S/Inj.	Accident	S/Inj.	Accident	S/Inj.	Accident	S/Inj.
Granite	2018	0	0	0	1	0	0	0	1
	2019	0	0	0	3	0	0	0	3
	2020	0	0	2	2	0	0	2	2
	2023	0	0	0	0	0	1	0	1
Iron	2017	1	1	1	1	2	4	4	6
	2018	0	0	2	3	3	3	5	6
	2019	1	1	3	3	9	10	13	14
	2020	0	0	2	3	6	6	8	9
	2021	0	0	2	2	9	9	11	11
	2022	0	0	3	3	9	9	12	12
	2023	0	0	4	5	4	4	8	9
	2024	0	0	4	4	7	10	11	14
Limestone	2018	0	0	1	1	0	0	1	1
	2019	0	0	0	1	0	0	0	1
	2020	0	0	1	1	0	0	1	1
	2021	0	0	1	1	4	5	5	6
	2022	0	0	2	2	0	0	2	2
	2024	0	0	2	2	0	0	2	2
Manganese	2017	0	2	0	0	0	0	0	2
	2018	1	1	0	0	0	0	1	1
	2019	0	1	0	0	0	0	0	1
	2020	0	1	0	0	0	0	0	1
	2021	1	1	0	0	0	0	1	1
	2022	4	4	0	0	1	1	5	5
	2023	5	6	0	0	0	0	5	6
	2024	1	3	0	0	2	4	3	7
Marble	2018	0	0	0	0	0	2	0	2
	2022	0	0	0	3	1	1	1	4
Quartz	2019	0	0	0	1	0	0	0	1
Sillimanite	2017	0	0	0	0	2	2	2	2
	2018	1	1	0	0	1	1	2	2
	2019	0	0	1	1	1	1	2	2
	2021	0	0	1	1	1	1	2	2
	2022	0	0	0	0	1	2	1	2
	2023	0	0	0	0	1	1	1	1
	2024	0	0	0	0	1	1	1	1
Steatite	2021	0	0	0	1	0	0	0	1
	2023	0	1	0	0	0	0	0	1

MINERAL	YEAR	SERIOUS ACCIDENTS							
		BELOWGROUND		OPENCAST		ABOVEGROUND		TOTAL	
		Accident	S/Inj.	Accident	S/Inj.	Accident	S/Inj.	Accident	S/Inj.
Stone	2017	0	0	0	6	0	0	0	6
	2018	0	0	0	4	0	0	0	4
	2019	0	0	0	3	0	0	0	3
	2020	0	0	0	5	0	0	0	5
	2021	0	0	0	4	0	0	0	4
	2022	0	0	1	8	1	4	2	12
	2023	0	0	0	1	0	0	0	1
	2024	0	0	0	4	1	2	1	6
Total	**2017**	**5**	**7**	**2**	**8**	**15**	**24**	**22**	**39**
	2018	**6**	**7**	**7**	**14**	**13**	**17**	**26**	**38**
	2019	**17**	**19**	**5**	**13**	**36**	**38**	**58**	**70**
	2020	**4**	**6**	**6**	**12**	**14**	**15**	**24**	**33**
	2021	**11**	**11**	**6**	**11**	**28**	**30**	**45**	**52**
	2022	**13**	**16**	**6**	**16**	**29**	**33**	**48**	**65**
	2023	**15**	**20**	**4**	**6**	**16**	**17**	**35**	**43**
	2024	**7**	**25**	**6**	**10**	**18**	**24**	**31**	**59**

Note : i) Figures for the year 2024 are provisional.
ii) Seriously injured from fatal accidents are also considered for computation of no. of serious injury as well as for serious injury rate.

4.0 Approval of Equipment, Appliances, Material and Machinery

Several equipments, appliances, materials and machineries meant for use in mines are required to be approved by DGMS; a list of such equipments is given at Appendix-V. Table below shows particulars of items approved during the year 2024.

List of DGMS Approved Closed Circuit Self Contained Breathing Apparatus

Sl. No.	Name of apparatus	Manufacturer	Indian Agent	Validity
1.	Open Circuit Compressed Air Breathing Appratus CABA 9000	M/s.Joseph Leslie Drager Manufacturing Pvt. Ltd., Leslico House, 4th Floor, Prof. V.S.Agase, Dadar(W), Mumbai-400 026.		31.12.2027
2.	Self Contained Close Circuit Oxygen Breathing Apparatus (PSSBG -4 EP)	M/s.Drager Safety AG & CO. KgaA, RevalstraBe 1, D- 23560 Lu beck, Germany	M/s.Joseph Leslie Drager Manufacturing Pvt. Ltd., Leslico House, 4th Floor, Prof. V.S. Agase, Dadar(W), Mumbai- 400 028.	31.08.2026
3.	Self Contained Oxygen Breathing Apparatus (Positive Pressure) Model BIOPAK 240R	M/s. Biomarine Ntron Inc, 456 Creamery Way, Exton, PA 19341, USA	M/s.Powertake Mining Pvt. Ltd., 27, Fathepur, G.T.Road, Sitarampur - 713 359, Asansol Dist. Burdwan.	29.09.2024
4.	Open Circuit Breathing Apparatus, Drager (Model-PAS LITE)	M/s.Drager Safety AG & CO. KgaA, RevalstraBe 1, D- 23560 Lu beck, Germany	M/s.Drager Safety AG & CO. KgaA, RevalstraBe 1, D-23560 Lu beck, Germany	08.04.2026 (SA-01/2022)
5.	Positive Pressure type Self Contained Closed Circuit Compressed Oxygen Breathing Apparatus, Model P-70i	M/s DEZEGA SP-TURKEY	Aleksey Chernov, Dezega SP Guvenlik Urunleri Sanayi Ve Ticaret Anonim Sirket, EGE Serbest Bolgesi Zafer SB Mah Nilufer SK. No. 30, Gaziemir Izmir, Turkey-999999	31.12.2024

List of DGMS Approved Detonators

Sl. No.	Name of the apparatus	Type of gassy seams	Type	Name & addresses of Detonators the Manufacturer/Suppliers	Validity
1.	Copper Electric Detonators with NHN	III	NHN	-do-	17.03.2026
2.	Coal Delay Detonators(CDD)	I, II & III	Delay	Gulf Oil Corpn. Ltd., Kukatpally, Post Bag No.1, Sanath Nagar, IE, Post Hyderabad – 500 018	31.12.2025
3.	Solar Copper Delay Detonator (0-6)	I & II	Delay	M/s Solar Industries India Ltd. 11, Zade Layout, Bharat Nagar, Nagpur-440 033.	08.03.2024 & 24.03.2024
4.	Solar Inst. Copper Electric Detonators (CED)	I & II	Inst.	-do-	19.11.2023 29.03.2024
5.	Solar Copper Delay Detonators (Epoxy Powder Coated steel shell) 0-6 nos.	I	Delay	-do-	16.02.2023
6.	Copper Electric Detonators (Epoxy Powder Coated Steel Shell)	II	Delay	-do-	09.03.2020
7.	Copper Electric Detonators (Epoxy Powder Coated Steel Shell)	II	Instantaneous	-do-	20.01.2025

8.	Supreme Copper Detonators (CDD)	I &II,	Delay	M/s Economic Explosive Ltd. . 11, Zade Layout, Bharat Nagar, Nagpur-440 033.	31.03.2024
9.	Supreme Copper Detonators (CDD)	III	Delay	-do-	18.09.2023
10.	Supreme Copper Delay Detonators (CDD) (Epoxy Powder coated steel shell)	I	Delay	M/s Economic Explosive Ltd. . 11, Zade Layout, Bharat Nagar, Nagpur-440 033.	30.9.2024
11.	Supreme Copper Delay Detonators (Epoxy Powder coated steel shell) (0-6)	II	Delay	M/s Economic Explosive Ltd. . 11, Zade Layout, Bharat Nagar, Nagpur-440 033.	29.06.2023
12.	Super Coal Delay Detonators (0- 6) with (Epoxy)	I	Delay	-do-	04.12.2026
13.	Super Coal Delay Detonators (0- 6) with (Epoxy)	II	Delay	-do-	15.01.2024
14.	Instantaneous Copper Electric Detonators with (Epoxy)	I	Instantaneous	-do-	15.01.2027
15.	Super Coal Delay Detonators (0- 6) with (Epoxy)	III	Delay	-do-	19.01.2024
16.	Instantaneous Copper Electric Detonators with (Epoxy)	II	Instantaneous	-do-	01.02.2027
17.	Instantaneous Copper Electric Detonators with (Epoxy)	III	Instantaneous	-do-	07.03.2024
18.	CED (AP-CED)	II	Instantaneous	-do-	23.03.2024
19.	A.P.Permitted Delay Detonators 0 to 6 (AP PDD)	III	Delay	-do-	02.01.2023
20.	Copper Coated Steel Permitted Delay Detonators 0-6 APSPDD	I	Delay	-do-	24.08.2026
21.	Copper Coated Steel Permitted Electric Detonators APSED	I	Instantaneous	-do-	24.08.2023
22.	Copper Instantaneous Electric Detonators (CET), CDET-Electra-G	I	Inst.	M/s C-Det Explosive. Pvt. Ltd. 2nd Floor, 79,Shivaji Nagar, Nagpur-440010.	10.05.2023
23.	Copper Electric Detonators (0-6) (CED), CDET-Electra-G	III	Inst..	-do-	30.08.2023
24.	Copper Electric Detonators (0-6), CDET-Vectra (CDD)	I	Delay.	-do-	26.05.2023
25.	Permitted Delay electric Detonators- CDET Vectra PDD(0-6 delays)	I	Delay	-do-	10.07.2026
26.	Permitted Delay electric Detonators- CDET Vectra PDD(0-6 delays)	II	Delay	-do-	25.08.2028

List of approved Exploder

Sl. No.	Name of the apparatus	Type of gassy seams	Type	Name & Addresses of the manufacturers/ suppliers	Validity
1.	Star Brand 25 shot Exploders(Ex-25)	I & II	-do-	M/s. Electrical Equipment Corpn., 314. Udyog Vihar, Phase – 6, Sector-37, Gurgaon-122 001 (Haryana)	27.09.2026
2.	Rhino 100 shot Exploders		-do-	-do-	31.10.2024

List of DGMS Approved Explosive

Sl. No.	Name of the apparatus	Type of gassy seams	Type	Name & addresses of the Manufacturer/ Suppliers	Validity
1.	Powergel- 501 (GE220) (Senetal permtted 5000 (Code GE 220)	I, II,& III	P-5	IDL	30.112025
2.	Pentadyne (PE-5I) Chub Pack ed	III	P-5	-do-	29.12.2025
3.	EMULCOAL-500 (composition EP5-01)	I	P-5	-do-	03.10.2023
4.	EMULCOAL-300 (Composition EP3-03)	I	P-3	-do-	12.01.2027
5.	Super coal-3 (Code No.SEL/EM/07/P-3)	I&II	P-3	-do-	19.09.2026
6.	Superme Coal-5, a P5	I	P-5	-do-	21.05.2024
7.	EMULCOAL-300 (Composition EP-3-03) a-P-3	II	P-3	Do	26.09.2027
8.	Shakticoal E-1 (Code No. EM- SBL/02), P-1	I	P-1	M/s. Special Blast Ltd., G-5, Wallfort Ozone, Near Fafadih Chowk, Raipur- 492 009, C.G.	27.05.2025
9.	Shakti Coal E 5 (Code No EM- SBL/08)	I	P-5	-do-	12.01.2027
10.	Shakti Coal-E-5 (Code No. EM- SBL-08)	II	P-5	Do	09.01.2027
11.	Novacoal-5 (NFCL/A-9)	I &II	P-5	M/s Navbharat Fuse Co Ltd, Navbharat Udyog Bhawan, Ring Road No- 1, Ravigram, Raipur- 492006 (Chhattisgarh)	10.11.2024
12.	Novacoal-1 (NFCL/102)	I	P-1	-do	01.10.2024
13.	MEC Coal-1	I	P-1	Ms Ama Industries Pvt Ltd., Maimoon Chambers, Ganghibagh.Nagpur- 440002	01.10.2024
14.	MEC Coal-5	I	P-5	-do-	01.10.2024

Updated List of approved manufacturer/suppliers of safety items

Sl. No.	Name of the apparatus	Type of gassy seams	Approval No.	Name & addresses of the manufacturer/ suppliers	Date of Validity
Gas Detectors & Systems					
1.	Portable Gas Detector model Pac 7000 CO & Pac 7000 O_2 for measurement of carbon monoxide & Oxygen in belowground coal mines	Coal Mines	SA-7/2009 for Pac 7000 CO & SA-8/2009 for Pac 7000 O_2	M/s Drager Safety AG & Co. KgaA Revalstrasse 1.D-23560,Lubek Germany.	24.04.2023
2.	Ultima Gas Detector (IR/Catalytic type) to be used as LMD in Coal Mines	Coal Mines	SA-16/2009	M/s Mines Safety Appliances Company, PO Box no. 427, Pittsburg, PA 15230, USA	10.09.2025
3.	Multi Gas Detector model VENTIS MX4 with pump for detection of LEL(methane), oxygen, carbon monoxide and hydrogen sulphide	In all mines [Gas group I and zone 1 & 2 of II C atmosphere]	SA-09/2014	M/s Industrial Scientific Corporation, USA 1001 Oakdale Road, Oakdale, PA 15071-1500, United States of America.	19.11.2023

4.	Methane and Carbon Monoxide gas detector model No. MP/CH4CO-O2	Coal Mines	SA-04/2015	M/s M.P. Enterprises, Mohalbani (Near old coke bhatta), P.O.- Bhowra, Dist-Dhanbad – 828 392, Jharkhand	04.11.2024
5.	Portable Multi Gas Detector Model – X-am 5600 (type – MQG 01**)	Coal & Metal Mines	SA-04/2017	Mr. Anton Schrofner, M/s Drager Safety AG & Co., KGaA, Revalstrasse 1, 23560, Lubeck, Germany.	05.04.2027
6.	Portable Multi Gas Detector, Model- X-am 2500 (type –MQG 0011)	Coal & Metal Mines	SA-05/2017	Mr. Anton Schrofner, M/s Drager Safety AG & Co., KGaA, Revalstrasse 1, 23560, Lubeck, Germany.	16.04.2027
7.	Mobile Gas Detector Model Pac 6*00/8*00 (MOG 00*)	Coal & Metal	SA-03/2022	Mr. Anton Schrofner, M/s Drager Safety AG & Co., KGaA, Revalstrasse 1, 23560, Lubeck, Germany.	28.08.2027
8.	Gas Detector Model: GX-3R PRO	Coal & Metal	SA-02/2023	M/s Riken Keiki Co. Ltd., 276 Azusawa Itabashi Ku, Tokyo, Japan	22.05.2025
9.	Gas Detector Model: GX-3R	Coal & Metal	SA-01/2023	M/s Riken Keiki Co. Ltd., 276 Azusawa Itabashi Ku, Tokyo, Japan	22.05.2025
Environmental Monitoring System					
1.	Approval to use Programmable sensor controller TX-9042, single port repeater TX-2122.56 and multi port repeater TX-2122.57 alongwith single port isolator TX-2121 with Environmental Monitoring system	In all mines.	SA-68/95	Vishwa Microprocessors (P) Ltd., Cresent Tower First floor,1 BD,2296,A.J.C.Bose Road,Kolkata-700 020.	31.8.2025
2.	Environmental Monitoring System S-66021/24/2006-Genl (Old file No. 16(1)99-Genl	Coal Mines	SA-06/2003	by M/s Jagdamba Tyres Retreading Co., Dhanbad.	30.07.2025
3.	Intrinsically safe TX 6351-2 Sentro 1 Sensor/Transmitter & TX 9081 Sentro Trip Amp/Transmitter	Coal Mines	DGMS Approval No. 722 of 2017	M/s Trolex Ltd., 10 Newby Road, Hazel Grove, Stockport, SK7 5DY, United Kingdom (Vishwa Microprocessors Pvt. Ltd., 62A, Hazra Road, West Bengal, Kolkata-700 019	10.02.2027
Cap Lamp					
1.	Intrinsically safe cum-weatherproof (IP-65) Miner's safety cap lamp type MCL-4LM	-do-	SA-6/2007	FCG Hi-tech Pvt. Ltd. Shree Pant Bhuvan, Mamasaheb Warekar Bridge, Mumbai-400007	30.11.2025
2.	Intrinsically safe cum weatherproof (IP-65) LED Miner's Safety Cap lamp	-do-	SA-21/2008	`CSK Technologies, 1st & 2nd Floor, S.A.Towers, H.No. 3-5-885/1, Himayath Nagar, Near Old M.L.A. Qtrs., Hyderabad – 500029	21.11.2025

3.	Intrinsically safe rechargeable miner's safety cap lamp with single LED of double filament type instead of 3 LEDs and the cable length of the caplamp till the external battery IS-RH-LED-02 would be upto 1.5 mts.	-do-	SA-5/2011	-do-	11.07.2026
4.	Intrinsically safe rechargeable Cap Lamp with inbuilt Li-ion battery type IS-RH-LED-05	Belowground Coal Mines	SA-02/2018	M/s Flameproof Equipments Pvt. Ltd., 'Flameproof House' Plot No. B-39, (Near Monginis), New Link Road, Andheri (W), MUMBAI- 400 053	18.09.2028
5.	LED Cap Lamps, Model – DEW-X-4	Belowground Coal Mines	SA-02/2019	M/s Dishant Engineering Works, 144/145, J.N. Mukherjee Road, Plot No.-48, Near Shaktipur, Ghusury, Howrah – 711 107	13.01.2024
6.	Ex-I Intrinsically safe Ex-I rechargeable LED Cap Lamp with built in battery Cat. No.PEW/CAP/Exi/051	Coal Mines	SA-01/2019	M/s Prompt Engineering Works, 18/2 Singh Industrial Estate, Ram Mandir Road, Goregaon (West) Bombay – 400 104	13.01.2024
7.	Intrinsically safe Rechargeable Cap Lamp with Inbuilt RF Drive Circuit (IS-RH-LED-11)	Metal Mines	SA-02/2022	M/s Flameproof Equipments Pvt. Ltd., 'Flameproof House' Plot No. B-39, (Near Monginis), New Link Road, Andheri (W), MUMBAI- 400 053	18.10.2024
8.	Intrinsically safe Rechargeable Cap Lamp with Inbuilt RF Drive Circuit (IS-RH-LED-11)	Coal Mines	SA-01/2024	M/s Flameproof Equipments Pvt. Ltd., 'Flameproof House' Plot No. B-39, (Near Monginis), New Link Road, Andheri (W), MUMBAI- 400 053	29.04.2029
Flame Safety Lamp					
1.	Velox GL-7	I,II & III	SA-7/70	J.K.Dey & Sons,13, Old China Bazar Street,Calcutta-700 001	14.9.2025
2.	Velox GL-50	Regulation 208(3) of CMR2017	SA-6/82	J.K.Dey & Sons,13, Old China Bazar Street,Calcutta-700 001	30.11.2024
1.	Coal Dust Explosibility Meter, Model – CDEM-1000	Coal Mines in Gas Group I atmosphere only.	SA-01/2016	M/s Sensidyne LP, 1000 112th Circle North, Suite 100, St. Petersburg, Florida, USA Meter	Coal Dust Explosibility 19.01.2026

Approved List of Self Rescuer

Sl. No.	Name of apparatus	Manufacturer	Indian Agent	Approval No.	Validity
1.	Chemical Oxygen Type Self Rescuer Model "Ci-30" (Duration 30 minutes)	M/s DEZEGA Holding Ukraine Ltd., erstwhile JSC Donetsk Mine Rescue Equipment Plant, Ukrain	M/s Intech Safety Pvt. Ltd. Madhurima House, 83 & 84, Chanditala Main Rd., Kolkata-53.	SA-3/2007	30.09.2027

2.	Chemical Oxygen Type Self Rescuer Model- ШСС-I П (Duration 60 minutes)	M/s JSC Donetsk Mine Rescue Equipment Plant, Ukrain	M/s Intech Safety Pvt. Ltd. Madhurima House, 83 & 84, Chanditala Main Rd., Kolkata-53.	SA-16/2003	30.09.2026
3	Oxygen Self Contained Self Rescuers Model Oxy 6000 MK II (Duration 60 minutes)	M/s Draeger Safety AG & CO. KGaA, Revalstrasse 1, 23560 Lubeck, Germany	M/s Draeger Safety India Pvt. Ltd., 9th & 10th Floor, Commerz II, International Business Park, Oberoi Garden City, Off Western Express Highway, Goregaon (East), Mumbai 400 069	SA-01/2018	12.09.2028
4.	Chemical Oxygen type Self Contained Self Rescuer Model SHS-30 E	M/s Corporation Roshimzaschita, Corporation Roshimzaschita 19, Morshanskeye Sho sse 392680, Tambov City, Tambov, Dist. Tambov, State: Tombav (Russia) – 392680	M/s AGG Lifesciences & Safety Solutions LLP, Bhopal, A-205, Minal Residency (Old), J.K. Road, Bhopal (M.P.), India – 462 023	SA-03/2019	20.05.2024

5.0 Coal & Metalliferous Mining Examination during 2024

i) Board of Mining Examination under the CMR, 2017

Shri. Ujjwal Tah	Chairman (BME) Director General of Mines Safety
Shri. Shankar Nagachari	Member, Director (Technical) (Engineering Services), Central Mines Planning and Design Institute Limited, Ranchi
Shri Suresh Chandra Suman	Member, Director (Mining), Neyvelli Lignite Corporation India Limited
Shri Jitendra Malik	Member, Director (Technical/ Operation), Norther Coalfields Limited
Dr. C. Sawmliana	Member, Chief Scientist, CIMFR, Dhanbad
Shri Sanjay Rajoria	Member, General Manager, Jharia Division, Tata Steel Limited, Dhanbad

ii) Board of Mining Examination under the MMR, 1961

Shri. Ujjwal Tah	Chairman (BME) Director General of Mines Safety
Shri. M M Abdulah	Member Director (Technical), MOIL, Nagpur
Shri. Pankaj Satija	Member M/s TATA Steel Private Limited, Odisha
Shri. Yogesh Kumar Sharma	Member Managing Director, Almora Magnesite Limited, Uttarakhand
Prof. D P Mishra	Member Department of Mining Engineering, IITISM, Dhanbad
Dr. J K Pandey	Member, Chief Scientist, CIMFR, Dhanbad

Examination procedure:-

The Directorate General of Mines Safety (DGMS) has introduced a Computer-Based Test (CBT) system for various statutory examinations conducted under the Coal Mines Regulations, 2017 and Metalliferous Mines Regulations, 1961. These examinations include those for the grant of Certificates of Competency for First Class Manager, Second Class Manager, Overman, Surveyor, and Sirdar.

Candidates who have successfully qualified in the Computer-Based Test examinations have been duly issued their respective Certificates of Competency in accordance with the prescribed procedures.
In addition to the Computer-Based Test (CBT) system, the Directorate General of Mines Safety (DGMS) has also made the process for issuance of Second Class Manager's Certificate of Competency, Surveyor's Certificate of Competency, and Overman's Certificate of Competency under the exemption provisions fully online.

Under this system, applications are submitted online and the verification of candidates' documents and credentials is carried out at the nearest Regional or Zonal Office of DGMS. A time-slot–based appointment system has been implemented for verification to ensure transparency, efficiency, and accountability, while also minimizing delays and congestion.

This online and time-bound process enhances ease of access for candidates and ensures uniformity and integrity in the issuance of certificates.

6.0 National Safety Awards (Mines)

6.1 Introduction

During the post-independence era, the mineral industry in India has achieved tremendous growth and also imbibed the latest mining technologies. Along with this growth, there has been corresponding awareness of the need to protect the health and lives of workers. The Constitution of India casts an obligation on all of us to ensure just and humane conditions of work. To give due recognition to outstanding safety performance at the national level, the Ministry of Labour, Government of India, instituted the National Safety Awards (Mines) in 1983 for the contest year 1982.

6.2 Scope

The scheme is applicable to all mines, which come under the purview of the Mines Act, 1952. Such mines have been classified into 7 groups as given below:

i. Coal mines - Below ground with difficult mining conditions
ii. Coal mines - Belowground (others)
iii. Coal mines - Opencast
iv. Metal mines - Mechanized opencast
v. Metal mines - Manual opencast
vi. Metal mines - Belowground
vii. Oil mines

6.3 Schemes

Among different indices available, the following two have been accepted as indicator of safety performance:

1. Longest accident free period (LAFP) in terms of manshifts worked during three consecutive years ending with the contest year.

2. Lowest injury frequency rate (LIFR) during three consecutive years ending with the contest year.

It is expected that every mine shall endeavor to improve its safety performance. A bad mine has a high injury frequency rate. After obtaining a breakthrough, its next attempt should be to achieve longest accident-free period in terms of manshifts worked.

6.4 Awards Committee

The awards committee is constituted by the Ministry of Labour & Employment with Director-General of Mines Safety as its Chairman, eight representatives of mine managements, eight representatives of trade unions as member and an officer of DGMS as its Member-Secretary.

6.5 Mode of operation

An advertisement is released through DAVP in English, Hindi and other regional languages inviting applications in prescribed proforma for National Safety Awards (Mines). An entry fee of Rs.100/- per application is charged through a crossed IPO drawn in favour of the Administrative Officer/DDO, DGMS and payable at Dhanbad Post Office. The prescribed application form is jointly signed by the mine management and a workers' representative.

6.6 Presentation of awards

National Safety Awards (Mines) for the contest year 2017, 2018, 2019, and 2020 was given away on March 08, 2022 at Vigyan Bhavan in New Delhi by the Hon'ble Minister of Labour & Employment.

7.0 Conference on Safety in Mines

The Conference on Safety in Mines is a tripartite forum at the national level in which the employers' representatives, the trade unions' representatives, the Government represented by the Ministry of Labour & Employment, DGMS, various administrative ministries/ departments, and State Governments and associated institutions, professional bodies, service associations, etc. take part. They review the status of safety in mines and the adequacy of existing measures in a spirit of cooperation. The conference also suggests measures for further improvement in the safety, welfare, and health of mine workers. The first Conference was held in the year 1958. The twelfth (12^{th}) conference was held on 28^{th} & 29^{th} January 2020 in New Delhi during which five major issues (i) Electrical safety – Recent trends, Strategy for improvement, (ii) Role of information technology in the mining sector, (iii) Prevalence of pneumoconiosis/silicosis amongst workers, present status of dust control measures and strategy for improvement, (iv) Strategies for disaster prevention in coal mines & (v) Occupational safety and health issues of contractual workers- Strategy to improve safety and health status were deliberated in detail. Several recommendations of these conferences have been given statutory backing and most of the others have been absorbed in management practices and policies. The conclusions and recommendations drawn during the conference have already been circulated to the mining industries for compliance.

APPENDIX-I

SAFETY, HEALTH & WELFARE LEGISLATION FOR MINES

ADMINISTERED BY DGMS

❑ THE MINES ACT, 1952

- The Coal Mines Regulations, 2017
- The Metalliferous Mines Regulations, 1961
- The Oil Mines Regulations, 2017
- The Mines Rules, 1955
- The Mines Vocational Training Rules, 1966
- The Mines Rescue Rules, 1985
- The Mines Creche Rules, 1966

❑ ELECTRICITY ACT, 2003

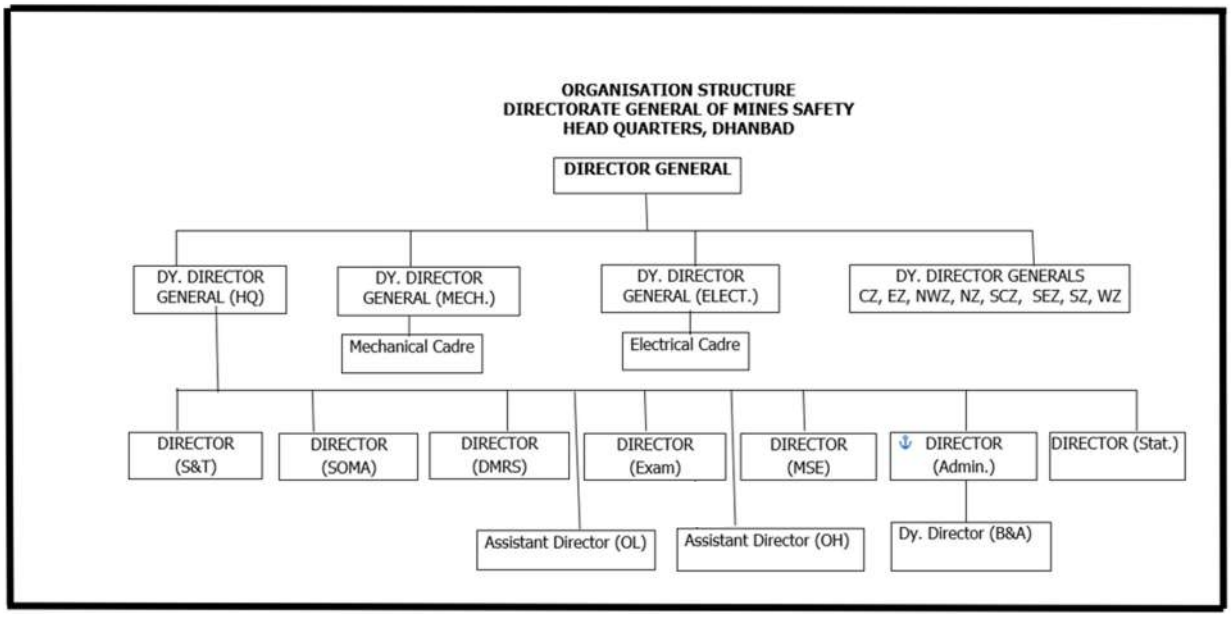
- The Central Electricity Authority (Measure relating to Safety and Electric Supply) Regulation, 2010

❑ ALLIED LEGISLATION

- The Explosive Rules, 2008
- The Factories Act, 1948: Chapters III & IV
- The Manufacture, Storage & Import of Hazardous Chemicals Rules, 1989 – under Environmental Protection Act, 1986
- The Land Acquisition (Mines) Act, 1885
- The Coal Mines (Conservation & Development) Act, 1974

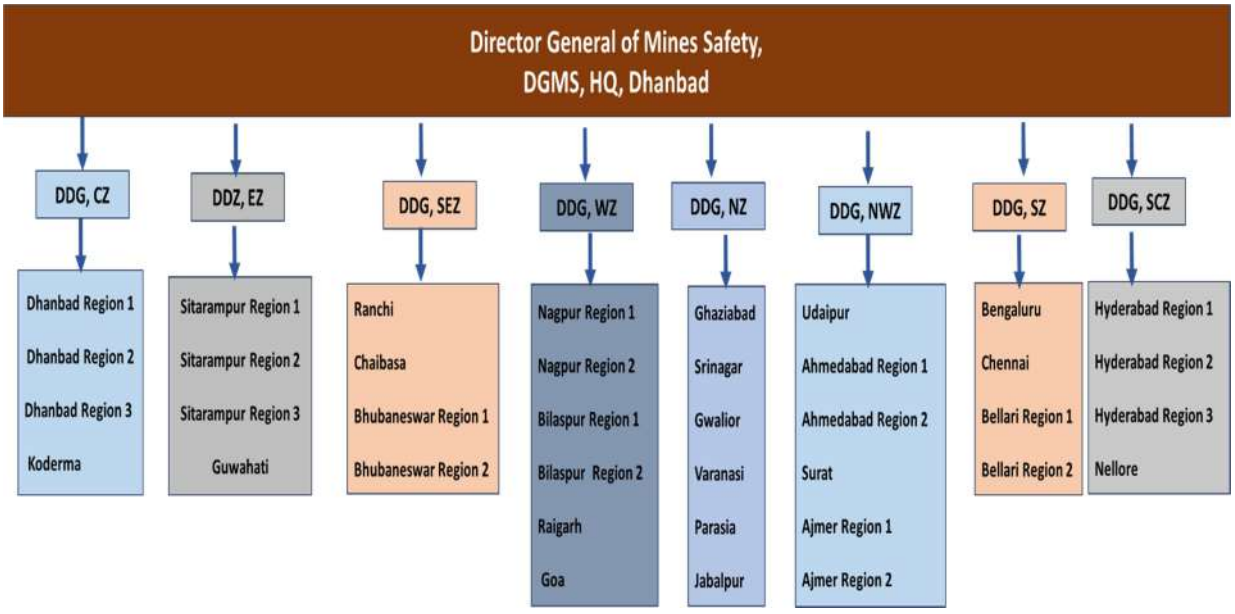
APPENDIX-IIA

ORGANISATIONAL STRUCTURE OF DGMS



APPENDIX-IIB

ORGANISATIONAL STRUCTURE OF FIELD OFFICES OF DGMS
(8 Zones, 38 Regions)



APPENDIX-IIC

FIELD ORGANIZATION OF DIRECTORATE GENERAL OF MINES SAFETY

S.No	Zone	Region
1.	Eastern Zone, Sitarampur, West Bengal	**1.** Sitarampur Region 1 **2.** Sitarampur Region 2 **3.** Sitarampur Region 3 **4.** Guwahati
2.	Central Zone, Dhanbad, Jharkhand	**1.** Dhanbad Region 1 **2.** Dhanbad Region 2 **3.** Dhanbad Region 3 **4.** Koderma
3.	South Eastern Zone, Ranchi Jharkhand	**1.** Ranchi Region **2.** Chaibasa Region **3.** Bhubaneshwar Region 1 **4.** Bhubaneshwar Region 2
4.	North Western Zone, Udaipur Rajasthan	**1.** Udaipur Region **2.** Surat Region **3.** Ahmedabad Region 1 **4.** Ahmedabad Region 2 **5.** Ajmer Region 1 **6.** Ajmer Region 2
5.	Northern Zone, Ghaziabad, Uttar Pradesh	**1.** Ghaziabad Region **2.** Gwalior Region **3.** Varanasi Region **4.** Jabalpur Region **5.** Srinagar Region **6.** Parasia Region
6.	South Central Zone, Hyderabad Telangana	**1.** Hyderabad Region 1 **2.** Hyderabad Region 2 **3.** Hyderabad Region 3 **4.** Nellore Region
7.	Southern Zone, Bengaluru, Karnataka	**1.** Bengaluru Region **2.** Chennai Region **3.** Bellary Region 1 **4.** Bellary Region 2
8.	Western Zone, Nagpur, Maharashtra	**1.** Nagpur Region 1 **2.** Nagpur Region 2 **3.** Bilaspur Region 1 **4.** Bilaspur Region 2 **5.** Raigarh Region **6.** Goa Region

APPENDIX-III

STATEMENT SHOWING THE NAMES OF OFFICERS GROUP (A&B) OF DIFFERENT DISCIPLINES AS ON 31.12.2024

Sl. No.	Designation	Name of Officers (S/Shri/Smt/Ms)	Place of Posting
1.	Director General of Mines Safety	UJJWAL TAH	Dhanbad
2.	Dy. Director General of Mines Safety	M. E. Murkute	WZ, Nagpur
		Arvind Kumar	CZ, Dhanbad
		Ravindra Tulshidas Mandekar	NWZ, Udaipur
		Shyam Sundar Prasad	SEZ, Ranchi
		Ramawatar Meena	WZ, Nagpur
		Vir Pratap	Raigarh Region (Posting awaited)
		Suprio Chakraborty	SCZ, Hyderabad
		T.R. Kannan	Chennai Region (Posting awaited)
		Niraj Kumar	Nagpur-1 (Posting awaited)
3	Director of Mines Safety (Mining)	Bipul Bihari Satiar	Bellary Region -1, SZ
		Muralidhar Bidari	Ghaziabad Region, NZ
		Saifullah Ansari	HQ, Dhanbad
		Vinodanand Kalundia	Goa Region, WZ
		M.C. Jaisawal	Ahmedabad Region-1, NWZ
		Murli Dhar Mishra	Surat Region, NWZ
		Aftab Ahmad	Ranchi Region, SEZ,
		Shyam Mishra	HQ, DMRS & Mines, Dhanbad
		Shyam Sunder Soni	Region -3, EZ, Sitarampur
		Sagesh Kumar M.R.	Region -3, CZ, Dhanbad
		Krishnendu Mondal	Bhubneswar Region -1, SEZ
		Awanish Kumar Mishra	Guwahati Region, EZ
		Nava Prokash Deori	Koderma Region, CZ
		Mohammed Niyazi	HQ, Dhanbad
		Ashok Kumar	Jabalpur Region, NZ
		Irfan Ahmed Ansari	Region -1, EZ, Sitarampur
		Mukesh Kumar Sinha	Bilaspur Region -1, WZ
		Umesh Madhukar Rao Sawarkar	Region -1, SCZ, Hyderabad.
		Nageswararao Namavrapu	Region -2, SCZ, Hyderabad.
		B. Dayasagar	Udaipur Region, NWZ
		Altaf Hussain Ansari	Parasia Region, NZ
		Vinod Rajak	Region-2, EZ, Sitarampur
		Manoj Kumar Sahoo	Region -2, CZ, Dhanbad
		Ravinder Kandakatla	Nagpur Region -2, WZ
		Rajesh Kumar Singh	Bilaspur Region -2, WZ
		Yohan Yejerla	Bellary Region -2, SZ
		Manoj Kumar Gupta	Nagpur, WZ
		Balasubrahmanyam Nasina	HQ, Dhanbad
		Surjeet Katewa	Ajmer Region -1, NWZ.
		Raj Kishore Singh	Ahmedabad Region -2, NWZ.
		Prafull Ranjan Thakur	Bhubneswar Region -2, SEZ.
		Karm Deo Ram	Gwalior Region, NZ
		Raghupathi Peddireddy	Nellore Region, SCZ
		Satyanarayana Inumula	Ajmer Region -2, NWZ

Sl. No.	Designation	Name of Officers (S/Shri/Smt/Ms)	Place of Posting
		Tom Mathew	Udaipur, NWZ
		Rakesh Rameshwar Mishra	Chaibasa Region, SEZ,
		Ajit Kumar	EXAM (HQ), Dhanbad
		Nayan Sinha	Ghaziabad, NZ
		Sanjeev Kumar Nomula	Srinagar Region, NZ
		Anil Kumar Das	Region -1, CZ, Dhanbad
		Kunapareddi Madhavarao	CZ, Dhanbad
		Sanjay Kumar Gimmedi	EZ, Sitarampur
		Saket Bharati	Bengaluru Region, SZ
		Kumar Rajiva Krishna Kumar	Varanasi Region, NZ
		Venugopala Swamy Kadem	Hyderabad, SCZ
4	Dy. Director of Mines Safety (Mining)	Rajeeb Pal	HQ, Dhanbad
		Niranjan Kumar	Udaipur Region, NWZ
		Arun Kumar	Bilaspur Region 2, WZ
		Durga Shanker Salvi	Ajmer Region 1, NWZ, Ajmer
		Ramesh Walikar	Region -2, EZ, Sitarampur
		Tikeshwar Mahto	NZ, Ghaziabad
		Venkanna Banothu	Region -2, SCZ, Hyderabad
		Gyaneswar Kondabattini	Region -3, SCZ, Hyderabad
		Thirupathi Kamera	Parasia Region, NZ,
		Nagendra Kumar Sriram	Bellary Region 1, SZ
		Aderla Rambabu	Ghaziabad Region, NZ
		Kishore Kumar Dokuparthy	Guwahati Region, EZ
		Avunoori Rajeshwar Rao	HQ, Dhanbad
		Kotana Appala Naidu	Nellore Region, SCZ
		Nillip Malik	HQ, Exam, Dhanbad
		Mohd. Javed Alam	Region -1, CZ, Dhanbad
		Parvez Alam	Region -3, EZ, Sitarampur
		Vishal Goyal	Udaipur Region, NWZ
		Tejavath Naresh	Koderma Region CZ, Dhanbad
		Mukthar Ahammad	Ghazibad Region, NZ
		Deepak Kumar Prabhakar	HQ, Soma/DMRS, Dhanbad
		Sanath Kumar P.	Region -1, SCZ Hyderabad.
		Mithilesh Kumar	Region -3, CZ, Dhanbad
		Ulimella Siva Sankar	Bhubneswar Region -2 ,SEZ
		Saheb Ram Mahto	Region -II, WZ, Nagpur
		Prakash B.	Region -1, WZ, Nagpur.
		Rounak Mandal	Region -2, EZ, Sitarampur
		Rajnish Kumar Sigar	Region -2, NWZ, Ajmer
		Ch. Venkatesh	HQ, Exam, Dhanbad
		Kanakam Prem Kumar	Region -2, SCZ, Hyderabad
		R. Lingaiah	Region -3, EZ, Sitarampur
		Kamlesh Kumar Verma	Region -I, SCZ,Hyderabad
		P. Hanumantha Rao	Ranchi Region, SEZ
		Mahesh Chatla	Chennai Region, SZ
		Kanakapudi Jeevan Kumar	Varanasi Region, NZ
		T. Praveen Kumar	Gwalior Region, NZ
		S. Sampath Kumar	Surat Region, NWZ
		Chaitanya Murthy Nakka	Ahmedabad Region -1, NWZ
		Bhukya Bhadru	Bilaspur Region-1, WZ
		Shaik Gulab	Jabalpur Region, WZ

Sl. No.	Designation	Name of Officers (S/Shri/Smt/Ms)	Place of Posting
		Tangallapally Hari Prasad	Bhubneswar Region -1, SEZ
		R. Sudheer	Chaibasa Region, SEZ
		Ajass Mohammed	Ranchi Region, SEZ
		Yerikala Balakrishna	Bengaluru Region, SZ
		Mallesh Porandla	Ahmedabad Region -2, NWZ.
		Sreenivas Chirra	Raigarh Region, WZ
		B. Raja Mogali	Sitarampur Region -1, EZ
		Kammala Srinivas	Nagpur Region -2, WZ
		Elango Ramachandran C	Srinagar Region, NZ
		Upendhar Rapolu	HQ, Dhanbad
		Madhu Sudhan Yadav M	Sitarampur Region -1, EZ
		Dipendra Ramesh Pantawane	Bellary Region -2, SZ
5	Dy. Director General of Mines Safety (Elect.)	Ajay Singh	HQ, Dhanbad
6	Director of Mines Safety (Elect.)	Thammisetty Srinivas	WZ, Nagpur
		Anand Agrawal	CZ, Dhanbad
		Puttaraju S	WZ, Nagpur
		Prakash Kumar	NZ, Ghaziabad
		Rajkumar	HQ, Elect, Dhanbad
		Palanimalai C	NWZ, Udaipur
		Biswanath Behera	SCZ, Hyderabad
		Pothumudi Damodar	EZ, Sitarampur
		Narasimha Rao Gullapalli	SZ, Bengaluru
		Arka Somayajulu Dhulipala	CZ, Dhanbad
		Vikas Govindrao Meshram	NZ, Ghaziabad
		Venkata Subbarao Ankalagalla	EZ, Sitarampur
		S. Anandavel	SCZ, Hyderabad
		T Arun	SEZ, Ranchi
		Maheswara Reddy Kanala	SEZ, Ranchi
		Raghu Merugu	NWZ, Udaipur
7	Dy. Director of Mines Safety (Elect.)	Rajeev Omprakash Verma	SCZ, Hyderabad
		Anil Toppo	HQ, Dhanbad
		Gaurav Laddha	WZ, Nagpur
		Sharma Ranjan	NZ, Ghaziabad
		Roopesh Singh Mehta	CZ, Dhanbad
		Veerendra Pratap A	CZ, Dhanbad
		Y Laxmi Srinivas	NZ, Ghaziabad
		Sindhu Kumar Upadhyay	HQ, SD, Dhanbad
		Durai Kannu P	NWZ, Udaipur
		Ajay Kumar Rathore	SZ, Bengaluru
		Ch. Laxminarayana	CZ, Dhanbad
		Chitresh Kar	NWZ, Udaipur
		Malaya Kumar Jena	SEZ, Ranchi
		Vineet Chourasia	WZ, Nagpur
		Shaik Nagulmeera	SCZ, Hyderabad
		Praveen S.	EZ, Sitarampur
		Saradhi Domala	SZ, Bengaluru
		Eppakayala Aravind Kumar	SEZ, Ranchi
		Shanigarapu Shankaraiah	NWZ, Udaipur
		Amrutharao Pothuraju	WZ, Nagpur
		Ganjikunta Vijayabhaskar	NZ, Ghaziabad

Sl. No.	Designation	Name of Officers (S/Shri/Smt/Ms)	Place of Posting
		Keshav Singh Meena	EZ, Sitarampur
		Tapas Kumar Behera	EZ, Sitarampur
		Mahipal Singh Rathore	WZ, Nagpur
		Anil Jain	NZ, Ghaziabad
		Rakesh Vemuri	NWZ, Udaipur
		Komal Choudhary	SCZ, Hyderabad
		Sheikh Ninhajuddin	SEZ, Ranchi
		Amit Kumar	EZ, Sitarampur
		Ashwani Kumar	CZ, Dhanbad
8	Dy. Director General of Mines Safety (Mech.)	D.B. Naik	HQ, Mech, Dhanbad
9	Director of Mines Safety (Mech.)	Parmanad Kumar Singh	HQ, SD, Dhanbad
		M. Arumugam	SCZ, Hyderabad
		Sudhir Ganpatrao Bhaisare	SCZ, Hyderabad
		Sandeep Shrivastava	NZ, Ghaziabad
		Vijaya Kumar K.	SZ, Bengaluru
		Pankaj Kumar Jain	WZ, Nagpur
		Balakrishna Padarthi	CZ, Dhanbad
		Rupesh Kumar Srivastava	WZ, Nagpur
		Ratnaker Sunki	SEZ, Ranchi
		Sankarsana Behera	SEZ, Ranchi
		Suresh Kumar Pedada	CZ, Dhanbad
		Ajaykumar Ramnaresh Yadav	EZ, Sitarampur
		Jagdish Prasad Verma	NWZ, Udaipur
		Naresh Govind Phule	EZ, Sitarampur
10	Dy. Director of Mines Safety (Mech.)	Sanket Kumar	NWZ, Udaipur
		Vijay Haridas Patil	WZ, Nagpur
		Venkata Rangarao Govindarajalu	EZ, Sitarampur
		Kaushik Sengupta	CZ, Dhanbad
		Umesh Kumar Sahu	NZ, Ghaziabad
		Dilip Kumar	SCZ, Hyderabad
		Ravindra Bontha	SEZ, Ranchi
		Sunil Baby Yohannan	EZ, Sitarampur
		Vijay Yadaorao Barapatre	WZ, Nagpur
		Nitin Kamlakar Raut	SZ, Bengaluru
11	Dy. Director of Mines Safety (OH)	-	
12	Assistant Director of Mines Safety (OH)	Dr. George John	SCZ, Hyderabad
13	Dy. Director General (Stat)	Jyoti Prasad Arya	HQ, Dhanbad
14	Director (Stat)	Gunjan Vaish	HQ, Dhanbad
		Prabhat Chandra Bhaskar	HQ, Dhanbad
15	Ashish Kumar	Deputy Director	HQ, Dhanbad
16	Assistant Director (Stat)	Ganeswar Meher	HQ, Dhanbad
17	Sr. Law Officer	A. S. Singh	HQ, Dhanbad
18	Law Officer Gr.I	Ritu Srivastava	HQ, Dhanbad
19	Assistant Director (OL)	Monica Tudu	HQ, Dhanbad
20	Administrative Officer	Pitar Paul Tiru	Ranchi
		Dipankar Bhattacharjee	CZ, Dhanbad
		Ramji Ram	EZ, Sitarampur
		R.A. Wanzarkar	WZ, Nagpur
		B. Deo Raju	SCZ, Hyderabad

Sl. No.	Designation	Name of Officers (S/Shri/Smt/Ms)	Place of Posting
		Anil Kumar	SZ, Bengaluru
		P.K. Nag	HQ, Dhanbad
21	Sr. Private Secratary	Xavier Beck	HQ, Dhanbad
22	Private Secretary	Sangram Hansda	NWZ, Udaipur
		Matan Prasad Mahto	HQ, Dhanbad
		Md. Aboo Asghar	EZ, Sitarampur
		Sudhir Kumar	HQ, Dhanbad
		Abha Shankar Pandey	CZ, Dhanbad
		Udai Sharma	HQ, Dhanbad
		Mahanti Toppo	SEZ, Ranchi
		R. Prema Kumari	SZ, Bengaluru
		Smt. A. Padma	SCZ, Hyderabad
		Sumita Maji	EZ, Sitarampur
23	Jr. Scientific Officer	-	
24	Sr. Statistical Officer	Ranjeet Kumar Ranjan	HQ, Dhanbad
		Manju Stella Jojo	HQ, Dhanbad
		Parwej Ansari	HQ, Dhanbad
		Pavita Dhama	HQ, Dhanbad
		Rabindra Nath Tiu	HQ, Dhanbad

APPENDIX-IIIA

LIST OF GROUP A & B OFFICERS OF DGMS ON DEPUATION DURING 2024

Sl. No.	Designation	Name of officers (S/Shri)	Place of Posting	Date of Posting
1.	Administrative officer	Sanjay Kumar	AIIMS, DEOGHAR	31.12.2020
2.	Office Superintendent	Sanjay Kumar Srivastava	NHRC, NEW DELHI	26.12.2023

APPENDIX-IIIB

OFFICERS OF DGMS ON TRAINING IN INDIA DURING 2024

Sl. No.	Course	Venue	Period	No. of Officers Attended
1	Soft Skill Training	VVGNLI, Noida	19.02.2024 to 23.02.2024	21
2	Preventive Vigilance	ISTM, Delhi	19.02.2024 to 20.02.2024	2
3	Right to Information - Public Information Officers	ISTM, Delhi	04.03.2024 to 06.03.2024	6
4	Investigation into Accidents/Incidents in Mines	IIT (ISM), DHANBAD	04.03.2024 to 08.03.2024	61
5	Records Management for Right to Information	ISTM, Delhi	26.03.2024 to 28.03.2024	2
6	Workshop on Litigation Management	ISTM, Delhi	26.03.2024 to 27.03.2024	2
7	Training of Trainers in OSH	ISTM, Delhi	03.04.2024 to 05.04.2024	2
8	e-Office Workshop	ISTM, Delhi	06.05.2024 to 07.05.2024	10
9	Online Orientation Training Programme on DFPR	ISTM, Delhi	07.05.2024	3
10	Pension and other Retirement Benefits	ISTM, Delhi	20.05.2024 to 22.05.2024	4
11	Follow-Up Training on Training of Trainers Program in OSH	VVGNLI, Noida	20.05.2024 to 21.05.2024	2
12	Advanced Course on Records Management	ISTM, Delhi	03.06.2024 to 04.06.2024	3
13	Proactive Disclosure of Information under RTI	ISTM, Delhi	10.06.2024	10
14	Pay Fixation Workshop	ISTM, Delhi	10.06.2024 to 12.06.2024	5
15	Orientation Training Programme on PFMS	ISTM, Delhi	24.06.2024 to 25.06.2024	6
16	MS-Excel (Advance)	ISTM, Delhi	24.06.2024 to 26.06.2024	5
17	Statistical Tools and Techniques	ISTM, DELHI	15.07.2024 to 17.07.2024	2
18	Design of Training	ISTM, DELHI	29.07.2024 to 02.08.2024	2

Sl. No.	Course	Venue	Period	No. of Officers Attended
19	Handling Parliamentary Matters	ISTM, DELHI	27.08.2024 to 28.08.2024	4
20	Conduct of Inquiry on Sexual Harassment Complaints	ISTM, DELHI	23.09.2024	3
21	Sexual Harassment at Workplace Workshop	ISTM, DELHI	14.10.2024	05
22	Prevention, Prohibition and Redressal of Sexual Harassment of Women at Work Place	ISTM, DELHI	04.11.2024	02
23	Cyber Security Workshop	ISTM, Delhi	02.12.2024 to o4.12.2024	02
24	Litigation Management	ISTM, Delhi	05.12.2024 to 06.12.2024	01
25	Specialized interactive Training Course on Oil Mines	M/s ONGC, GOA	08.07.2024 to 12.07.2024	20
26	MDP Training Programs on Public Procurement (Basic)-GeM	M/s AJNIFM, Faridabad	03.06.2024 to 08.06.2024	07
27	Establishment, Administration and Accounts-Two weeks	S&T, HQ,DGMS	Sep-24	29
28	DST Sponsored 5 day "Training of Trainers (ToT) on Role of Technology in Community Level Disaster Karmayogi Bharat, Delhi Mitigation"	M/s LBSNAA, Mussoorie	21.10.2024 to 25.10.2024	01
29	06 mandatory courses in iGot Karmayogi online portal	iGoT Karmayogi(Online)	Aug -2024	480
30	4 Hrs National Learning Week Compliance	iGoT Karmayogi(Online)	Oct-2024	225
31	AI, Machine Learning and Deep Learning	iGoT Karmayogi(Online)	16.03.2024	01

APPENDIX-IIIC

OFFICERS OF DGMS ON TRAINING/VISIT ABROAD IN 2024

Sl. No.	Name	Country Visited	Scheme under which the visit took place	Dated
NIL				

APPENDIX-IV

A-COAL MINES REGULATION, 2017

STATEMENT NO. IA

Result of Examinations, 2024

1. Issue of Certificate:

S.No.	Type of Examination	2024		Remarks
		Appeared	Passed	
1.	**Exchange Certificate**			
(a)	First Class Manager's Certificate Metal to Coal			No Exchange Certificate examination was conducted in 2024 by the Board of Mining Examinations under CMR, 2017
(b)	Second Class Manager's Certificate Metal to Coal			
(c)	Surveyor's Certificate Metal to Coal			
(d)	Foreman to Overman			
(e)	Mate to Sirdar			
A.	Regular Examination (Un-Restricted)			Result declared on
(a)	First Class Manager's Certificate	1837	664	17.01.2025
(b)	Second Class Manager's Certificate	522	10	
(c)	Surveyor's Certificate	125	16	
(d)	Overman's Certificate	237	5	
(e)	Sirdar	234	52	
(f)	Gas Testing	447	41	
B.	Regular Examination (Restricted)			Result Declared on
(a)	First Class Manager's Certificate	1085	174	17.01.2025
(b)	Second Class Manager's Certificate	664	51	
(c)	Surveyor's Certificate	164	7	
(d)	Overman's Certificate	129	9	
(e)	Sirdar	112	10	
C.	**Regular Certificate Other than above**			
(a)	Winding Engine Driver's Certificate	10	8	17.01.2025

STATEMENT NO. IB

Certificate without examination (Exempted Categories)

S.No.	Type of Certificate	2024				Remarks
		Un-Restricted		Restricted		
		Applied	Issued	Applied	Issued	
(a)	Second Class Manager's Certificate	1087	742	306	156	
(b)	Surveyor's Certificate	106	66	42	25	
(c)	Overman's Certificate	3323	2354	371	247	

2. Medical Examination : There is no provision for the Medical Examination below the age of 60 years under the CMR, 2017.

STATEMENT NO. II

Suspension of Certificates under the Coal Mines Regulations, 2017 for the Year, 2024

S. No.	Type of Certificate	No. of Certificates Suspended/Cancelled	Duration of Suspension
NIL			

STATEMENT NO. III

Debarment form appearing in Examination under the Coal Mines Regulation 2017 for the Year 2024

S.No.	Name	Type of Certificate	Period of debarment
1	Shri Roshan Prasad	Overman Certificate of Competency (UR)	03 Year debarment
2	Shri Jarpala Kalyan	Second Class Manager Certificate of Competency (UR)	05 Year debarment
3	Shri Buruka Prashanth	Second Class Manager Certificate of Competency (UR)	05 Year debarment
4	Shri Abhishek Kumar	Second Class Manager Certificate of Competency (UR)	05 Year debarment
5	Shri Niharendu Mondal	Second Class Manager Certificate of Competency (R)	05 Year debarment
6	Shri Jangili Surya Teja	Second Class Manager Certificate of Competency (R)	05 Year debarment
7	Shri Rajesh Kumar Yadav	Second Class Manager Certificate of Competency (UR)	05 Year debarment
8	Shri Vicky Kumar Mandal	Overman Certificate of Competency(UR)	03 year debarment
9	Shri Om Prakash Saw	Overman Certificate of Competency(UR)	03 year debarment
10	Shri Kumar Ujjwal	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
11	Ritesh Sah	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
12	Sandeep Naik	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
13	Rahul Das	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
14	Rahul Jagid	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
15	Shraban Kumar Panda	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
16	Hemant Kumar Pradhan	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
17	Vishal Dadheech	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
18	Subham Sinha	Gas Testing Certificate of Competency on Exemption basis	01 year debarment

S.No.	Name	Type of Certificate	Period of debarment
19	Prakash Singh	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
20	Diganto Pal	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
21	Sahil Ansari	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
22	Saroj Kumar Mahto	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
23	Nehal Kumar Paswan	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
24	Prakash Kerketta	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
25	Soumaya Ranjan Garnayak	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
26	Bhabagrahi Mallik	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
27	Manoj Kumar Guru	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
28	Jayprakash Patra	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
29	Papular Manjhi	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
30	Satyaveer Singh	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
31	Sameer Kerketta	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
32	Prabhat Kumar Mandal	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
33	Mukesh Kumar Mahato	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
34	Yuraj Singh Chundawat	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
35	Soumyasovan Rout	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
36	Sandeep Kumar Doot	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
37	Puran Lal Jat	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
38	Sharavan Kumar Nayak	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
39	Mukesh Kumar choudhary	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
40	Khatik Shree Ajay Shree Ramesh	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
41	Manish Kumar	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
42	Rahul Sanadhya	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
43	Pawan Kumar Dasana	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
44	Ashutosh Sonwane	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
45	Ankit	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
46	Natwar Lal Mali	Gas Testing Certificate of Competency on Exemption basis	01 year debarment

S.No.	Name	Type of Certificate	Period of debarment
47	Ikramul Haque	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
48	Upare Rahul Bhaskar	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
49	Siddiqui Hasan Ali Ali Asgar	Gas Testing Certificate of Competency on Exemption basis	01 year debarment

STATEMENT NO. IV

Duplicate Certificate issued under Coal Mines Regulations, 2017 during the Year 2024.

S.No.	Name (S/Shri)	Type of Certificate	No. of Certificate	Date of Issue
1.	Nilendu Kumar Singh	First Class	4092	23.04.2024
2.	Chandra Prakash Rathour	Overman	OMU-E/23757	27.06.2024

B-METALLIFEROUS MINE REGULATIONS, 1961

STATEMENT NO. 1A

Result of Examination, 2024

1. Issue of Certificate:

S.No.	Type of Examination	2024		Remarks
		Appeared	Passed	
1.	**Exchange Certificate**			
(a)	First Class Manager's Certificate Metal to Coal			No Exchange Certificate examination was conducted in 2024 by the Board of Mining Examinations under MMR, 1961
(b)	Second Class Manager's Certificate Coal to Metal			
(c)	Surveyor's Certificate Coal to Metal			
(d)	Overman to Foreman			
(e)	Sirdar to Mate			
A.	**Regular Examination (Un-Restricted) CBT**			**Result declared on**
(a)	First Class Manager's Certificate	426	39	17.01.2025
(b)	Second Class Manager's Certificate	155	0	
(c)	Surveyor's Certificate	64	10	
(d)	Foremen's Certificate	97	3	
(e)	Mining Mate	304	15	
(f)	Blaster	345	61	
(g)	Gas Testing	447	41	
B.	**Regular Examination (Restricted) CBT**			**Result Declared on**
(a)	First Class Manager's Certificate	1256	58	17.01.2025
(b)	Second Class Manager's Certificate	108	8	
(c)	Surveyor's Certificate	981	109	
(d)	Foremen's Certificate	1817	20	
(e)	Mining Mate	476	66	
(f)	Blaster	1256	58	
C.	**Regular Certificate Other than above (Oral Examination)**			
(a)	Winding Engine Driver's Certificate			17.01.2025
	(a) I Class	29	17	
	(b) II Class	67	34	
(b)	**I. Un-Restricted**			17.01.2025
1	Mate's Certificate Examination held in 2024	89	29	
2	Blaster's Certificate Examination held in 2024	126	19	
3	Gas Testing	10	5	
	I. Restricted			17.01.2025
1	Mate's Certificate Examination held in 2024	173	46	
2	Blaster's Certificate Examination held in 2024	74	21	

STATEMENT NO. II

SUSPENSION OF CERTIFICATES UNDER THE METALLIFEROUS MINE REGULATION, 1961

S. No.	Type of Certificate	No. of Certificates Suspended	Duration of Suspension
NIL			

STATEMENT NO. III

DEBARMENT FROM APPEARING IN EXAMINATION UNDER THE METALLIFEROUS MINES REGULATION, 1961

S. No.	Name	Type of Certificate	Period of Debarment
1	Shri Raghvendra Pratap Singh	Second Class Manager Certificate of Competency(R)	Life time debarment
2	Shri Dodiya Paragkumar Merubhai	Second Class Manager Certificate of Competency(R)	05 year debarment
3	Shri Chevva Hanumanth Reddy	Foreman Certificate of Competency(R)	Life time debarment
4	Shri G V NagendraReddy	Foreman Certificate of Competency(R)	Life time debarment
5	Shri Jamanesh Kumar Parashar	Foreman Certificate of Competency(R)	Life time debarment
6	Shri Rajesh Joshi	Mate Certificate of Competency(R)	05 year debarment
7	Shri Rajesh Kumar Yadav	Second Class Certificate of Competency Metal (R) on Exemption basis	Lifetime debarment
8	Shri Adarsh Kumar Mahto	Foreman Certificate of Competency(R)	05 years debarment
9	Shri Mahanthesha A	Foreman Certificate of Competency(R)	Lifetime debarment
10	Shri G Veeramani	Mate Certificate of Competency(R)	05 years debarment
11	Ritesh Sah	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
12	Sandeep Naik	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
13	Rahul Das	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
14	Rahul Jagid	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
15	Shraban Kumar Panda	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
16	Hemant Kumar Pradhan	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
17	Vishal Dadheech	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
18	Subham Sinha	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
19	Prakash Singh	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
20	Diganto Pal	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
21	Sahil Ansari	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
22	Saroj Kumar Mahto	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
23	Nehal Kumar Paswan	Gas Testing Certificate of Competency on Exemption basis	01 year debarment

S. No.	Name	Type of Certificate	Period of Debarment
24	Prakash Kerketta	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
25	Soumaya Ranjan Garnayak	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
26	Bhabagrahi Mallik	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
27	Manoj Kumar Guru	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
28	Jayprakash Patra	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
29	Papular Manjhi	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
30	Satyaveer Singh	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
31	Sameer Kerketta	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
32	Prabhat Kumar Mandal	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
33	Mukesh Kumar Mahato	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
34	Yuraj Singh Chundawat	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
35	Soumyasovan Rout	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
36	Sandeep Kumar Doot	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
37	Puran Lal Jat	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
38	Sharavan Kumar Nayak	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
39	Mukesh Kumar choudhary	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
40	Khatik Shree Ajay Shree Ramesh	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
41	Manish Kumar	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
42	Rahul Sanadhya	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
43	Pawan Kumar Dasana	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
44	Ashutosh Sonwane	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
45	Ankit	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
46	Natwar Lal Mali	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
47	Ikramul Haque	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
48	Upare Rahul Bhaskar	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
49	Siddiqui Hasan Ali Ali Asgar	Gas Testing Certificate of Competency on Exemption basis	01 year debarment
50	Shri Rajendra Rout	Mate Certificate of Competency (Restricted)	05 year debarment
51	Shri Vijay Singh Sirohiya	Second Class Certificate of Competency (Restricted)	05 year debarment

STATEMENT NO. IVA

CERTIFICATE WITHOUT EXAMINATION (EXEMPTED CATEGORIES)

S.No.	Type of Certificate	2024				Remarks
		Un-Restricted		Restricted		
		Applied	Issued	Applied	Issued	
(a)	II Class Manager's Certificate	287	177	825	374	
(b)	Surveyor's Certificate	60	12	34	29	
(c)	Foreman's Certificate	332	180	982	424	

STATEMENT NO. IVB

S.No.	Type of Examination	2024		Remarks
		Appeared	Passed	
A.	**Five Yearly Medical Examination Under Regulation 30(1):**			
I	Foreman's Certificate	23	05	
II	Mining Mate's Certificate	93	35	
III	Blaster's Certificate	06	02	
IV	Winding Engine Driver's Certificate (c) First Class	0	0	
	(d) Second Class	0	0	
B.	**Yearly Medical Examination Under Regulation 31:**			The Medical Examination is being conducted as per the Gazette notification G.S.R. 34 ((E) dated 20.01.2022, under Reg. 31 of the MMR, 1961.
I	First Class Manger's Certificate			
II	Second Class Manger's Certificate			
III	Surveyor's Certificate			
C	**Yearly Medical Examination Under Regulation 31:**			
I	Foreman's Certificate			
II	Mining Mate's Certificate			
III	Blaster's Certificate			
IV	Winding Engine Driver's Certificate (a) First Class (b) Second Class			

STATEMENT NO. V

DUPLICATE CERTIFICATES ISSUED UNDR METALLIFEROUS MINES REGULATION, 1961

S. No.	Name (S/Shri)	Type of Certificate	No. of Certificate	Date of issue
1	Abhishek Brijmohan Mishra	Foreman	EXAM/FU/EXEMPT/1190/27	16.01.2024
2	Shameem Mohammed	Mining Mate	MR/SCZ/0464	06.06.2024
3	Gaddam Prasad	Mining Mate	MR/SCZ/0915	06.06.2024
4	Naresh Meena	Mining Mate	MR/NWZ/0260	26.11.2024
5	Sushil Kumar	Blaster	BU/NZ/0083	13.12.2024

DUPLICATE CERTIFICATES (GAS-TESTING) ISSUED UNDER METTALLIIFEROUS MINES REGULATIONS, 1961

S. No.	Name	Type of Certificate	No. of Certificate	Date of issue
1	Chandra Prakash Rathour	Gas Testing	GT/WZ/5716	27.06.2024
2	Sanjay Kumar Chourasia	Gas Testing	GT/EZ/1828	26.11.2024
3	Nirmal Ruidas	Gas Testing	GT/EZ/1759	13.12.2024

STATEMENT NO.VI

CERTIFICATE WITHOUT EXAMINATION (EXEMPTED CATEGORIES)
(Under the Mines Act, 1952)

S.No.	Type of Certificate	2024		Remarks
		Applied	Issued	
(a)	Gas Testing	3432	3427	

APPENDIX-V

1. List of Mines Safety Equipment and Material required to be approved by DGMS under Coal & Metalliferous Mines Regulations.

EXTRAORDINARY
PART II—Section 3—Sub-section (i)
PUBLISHED BY AUTHORITY
[No. 503] NEW DELHI, WEDNESDAY, JULY 25, 2018

MINISTRY OF LABOUR AND EMPLOYMENT

(Directorate General of Mines Safety)

NOTIFICATION

Dhanbad, the 18th July, 2018

G.S.R. 673(E) — In exercise of the powers conferred on me under sub-regulation (3) of the Regulation 208 of the Coal Mines Regulations, 2017, I, Prasanta Kumar Sarkar, Chief Inspector of Mines, also designated as the Director-General of Mines Safety, hereby specify the following appliances, equipment, machinery and other material that are or may be used in a underground coal mine, which shall be of such type, standard and make as approved by me by a general or special order, and where any such appliances, equipment, machinery and other material had been specified by me, any such appliances, equipment, machinery and other material other than the approved by me as aforesaid, shall not be used in any mine : —

Sl. No.	Appliances, Equipment, Machinery and other material	Special / General Order
1	Flame Safety Lamp	Special order
2	Electric torch (Cap Lamp)	Special order
3	Permitted Explosives	Special order
4	Exploders	Special order
5	Apparatus for detecting gases like CO, CO2, NOx, O2, etc.	Special order
6	Mine environment monitoring apparatus	Special order
7	Power supports & its components	Special order
8	Man Riding System	Special order
9	Winding Rope	Special order
10	Balance Rope	Special order
11	Haulage rope for man riding	Special order
12	Underground Locomotive	Special order
13	Internal Combustion Engine	Special order
14	Flame Proof, Intrinsically safe, increased safety Electrical equipment	Special order
15	Electrical lighting apparatus for use in UG Coal mines	Special order
16	Coal Dust Explosibility Meter	Special order
17	Shaft Loader	Special order
18	Self advancing goaf edge supports	Special order
19	Alternative measures in lieu of Stone dust barriers	Special order
20	Lux meter	Special order
21	Self Rescuers	Special order
22	Stone Dust barrier	General order
23	Glass of Flame Safety Lamps	General order
24	Cap Lamp Bulbs	General order
25	Tub Couplings	General order
26	Fire-resistant brattices including plastic sheeting	General order
27	Industrial Safety Belt & Harness	General order

Sl. No.	Appliances, Equipment, Machinery and other material	Special / General Order
28	Hydraulic roof support, Hydraulic props, etc.	General order
29	Link bars	General order
30	Gloves, Goggles, Dust Masks, etc.	General order
31	Fire Fighting & Fire suppression systems	General order
32	Steel supports, Roof Bolts, Cement and Resin Grouts	General order
33	Noise level meter	General order
34	Underground Conveyor belting	General order
35	High pressure hydraulic hose (Fire resistant)	General order
36	Hydraulic fluid used in underground machinery (Fire Resistant)	General order
37	Dust Sampler	General order
38	Cage suspension Gear	General order
39	Cage Suspension Gear including Bridle chain	General order
40	Automatic Contrivance	General order
41	Power Brake	General order
42	Automatic Speed Chart Recorder	General order
43	Strata monitoring devices / Load cell / Auto warning devices	General order
44	Water ampoules / Gel ampoules / Stemming plugs	General order
45	Oil of Flame Safety Lamps	General order
46	Chemical dust suppressant including additives	General order
47	Detaching Hooks	General order
48	Electrical, Communication, shot firing and special cables	General order
49	Dust Suppression / prevention devices in drilling/boring machines	General order
50	Portable hydraulic drilling machine	General order
51	Intrinsically safe insulation tester	General order
52	Audio visual alarm	General order
53	Pit bottom buffer	General order
54	Emergency Steam stop valve	General order
55	Friction stabilizers/split sets fluid expandable rock bolts	General order
56	Glass/fiber reinforced plastic/polymer rock bolt assemblies	General order
57	Protective Footwear of all types	General order
58	Helmets	General order

[F. No. S-29022/1/2018-Genl.]
PRASANTA KUMAR SARKAR
Chief Inspector of Mines & Director General of Mines Safety

ANNEXURE– VI

GAZETTE NOTIFICATIONS

No Gazette Notification was issued during the years 2024.

ANNEXURE– VII

DGMS Circulars – 2024

सत्यमेव जयते

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

आज़ादी का अमृत महोत्सव

No. DGMS (Legis.)(Exam) Circular No. 01 of 2024 Dhanbad, dated: 23/07/2024

To,
All Concerned

Subject: Issue of Statutory Certificates on Exemption basis and Examination basis under the Coal Mines Regulations, 2017, the Metalliferous Mines Regulations, 1961 and the Mines Act, 1952 through Online/Digital mode.

Board of Mining Examinations is issuing statutory certificates under the Coal Mines Regulations, 2017, the Metalliferous Mines Regulations, 1961 and the Mines Act, 1952 on Examination basis (CBT-2023 onwards) and Exemption basis since 15.09.2023 through Online/Digital mode.

If required, the Online/Digital certificates can be verified online through the link https://dgmsexamination.com/dgmsjun23/check_certificate.php (Examination basis) & https://dgmsexemption.com/dgmsexmjun23/check_certificate.php (Exemption basis) provided in DGMS official website.

Sd/-
Chief Inspector of Mines &
Director General of Mines Safety

खान सुरक्षा महानिदेशालय - वर्ष 1902 से खनिकों के स्वास्थ्य एवं सुरक्षा के लिए प्रतिबद्ध
Directorate General of Mines Safety - Protecting Miner's Safety & Health Since 1902
Directorate General of Mines Safety (HQ), Hirapur, Dhanbad, Jharkhand- 826001
Head Office Ph. No. : 0326-2221036, e-mail :dir.exam@dgms.gov.in

सत्यमेव जयते

आज़ादी का अमृत महोत्सव

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 (OH)/01 Dhanbad, dated 19 .04.2024

To

The Owner, Agent and Managers of all Mines

Sub: Heat wave in summer and precautions against occurrence of Accidents/incidents due to exposure to high temperature.

In preparation for this summer season, it is imperative to acknowledge and mitigate the risks associated with working in hot environments, especially for miners. Heat stress poses a significant threat and can result in various health complications if not adequately addressed.

The physiological effects of exposure to high atmospheric temperatures during the summer months and the guidelines for dealing with the situation were outlined in Circular No. DGMS (Tech) Circular (OH)/01, Dhanbad dated 24th April 2023. The guidelines issued shall be strictly followed.

Further, here are some key points to keep in mind to ensure everyone's safety during the upcoming season:

(i) Recognizing the Symptoms of Heat Stress and taking preventive measures:

Recognizing the Symptoms of Heat Stress:	Preventing Heat Stress:
- Skin is hot, usually dry, red, or spotted. - Body temperature rises. - Victim may be confused. - The face may be pale or flushed. - Muscle cramps from loss of sodium.	- Provide cool drinking water near miners. - Encourage miners to drink a cup of water every 15 to 20 minutes. - Avoid drinks with caffeine and large amounts of sugar. - Use sun blockers, proper protective clothing, and shade. - Implement administrative controls to rotate miners on hot jobs. - Schedule heavy tasks during cooler times of the day.

(ii) Do's and Do Not's while treating the person with symptoms of Heat Stress:

Do's	Do Not's
- Remove the miner from the hot area. - Apply cool wet cloths. - Give water if the miner is awake. - Seek medical attention if there is no improvement.	- Apply ice directly to the skin. - Allow the miner to become so cold that shivering develops. - Leave the miner alone.

Page 1 of 2

You are advised to take the following precautions to ensure preparedness and effectively manage the heat wave conditions in the mines to mitigate the risks to the health of miners associated with working in hot environments:

(i) Slowing down the pace of work shall be allowed if the worker feels any discomfort.
(ii) Rest areas shall be located as near to the place of work as possible.
(iii) Provide cool drinking water and electrolyte supplements near the working place in the mines.
(iv) Encourage miners to drink a cup of water every 15 to 20 minutes.
(v) Use sun blockers, proper protective clothing, and shade.
(vi) Implement administrative controls to rotate miners on hot jobs.
(vii) Schedule heavy tasks during cooler times of the day.
(viii) Ensure that the workers do not enter/work in an atmosphere having no ventilation or inadequate ventilation in underground mines.
(ix) Provide awareness among all the employees on the symptoms of heat stress and the dos and don'ts shall be prepared and pasted at conspicuous places of the mines.
(x) Provide required training on "heat-stress recognition & prevention" to all employees.
(xi) Monitor environmental conditions regularly.
(xii) Encourage open communication about any discomfort or symptoms experienced.

Also, include the training on "the physiological effects of exposure to high atmospheric temperatures during the summer months and dealing with the situation" as a part of the regular vocational training (Basic/Refresher/Special/others) programmes.

Let's prioritize health and safety as we navigate through the summer months. Our Miners' health and well-being are paramount, and by being vigilant and proactive, we can ensure a safe and productive work environment for everyone.

Stay cool and stay safe!

Sd/-

Director General of Mines Safety

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

No. DGMS/SOMA/(Tech) Circular No. 02 Dhanbad Dated 22nd May 2024

To
The Owners, Agents and Managers of All Mines

Subject: Precautions against danger of inundation in mines.

The sudden rise in water level in or around the catchments area due to rains during monsoon is a common phenomenon. The heavy current of water may cut across the bunds and barriers by deviating its normal course of water and also may result in flooding of low lying area including mine workings, if they are not adequately guarded.

Precautions against the danger of inundation due to the surface water and underground water have been provided under Regulations 149 & 150 of CMR, 2017, Regulations 127 & 128 of the MMR 1961 respectively. Also learning from the earlier inundation incidents/accidents including major disasters, DGMS guidelines/circulars have been issued for implementation to safeguard against the inundation in mines.

Identification of possible sources of danger due to surface water, remedial measures to avoid such danger, monsoon preparation and precaution against danger of inundation from surface water were emphasized and circulated through DGMS Tech. Circular No. 2 of 1978 and DGMS/SOMA/(Tech) Circular No. 6 of 2004.

However, in spite of above guide lines and caution letters issued from this Directorate from time to time, there have been cases of inundation in underground and opencast mines, mainly because adequate precautions were not taken.

The following instances have been recorded during the recent years

(i) Instances of flooding of mines due to the sudden rise of water in the river/nallahs which have over flown above the known HFL, breaching the bund constructed for the protection of opencast workings against the river/nallah, resulting in flooding of the mine workings.

(ii) The workmen going to the place of work near the sump have been washed away into the sump by the flowing water in the mine during heavy rain.

(iii) Drowning of persons in the sumps/waterlogged workings for attempting to enter the sump for various reasons.

(iv) Rainwater entering the underground workings through the subsidence cracks of the shallow cover workings.

(v) The Dumper operator driving the dumper on the haul road inadvertently entered the sump.

To prevent the occurrence of the incidents/accidents of inundation, all the mining companies shall prepare a principal hazard management plan specific to the mine and based on the risk assessed, prepare and implement the safety management plan which shall have bearing to and not limited to the following precautions:

1. Effective implementation of the provisions of the Regulations 149 & 150 of CMR, 2017, Regulations 127 & 128 of the MMR 1961, DGMS circulars issued on the subject and recommendations made by the courts of inquiry appointed on the disasters occurred in Indian mines due to inundation.

2. The pathways leading to the working places in the opencast mines shall be so situated that there is no danger to the passers thereby due to the water.

3. The rain water of the catchment area surrounding the mine shall be coursed away from the mine through a system of garland drains, so that even in heavy rains there is no danger to the persons working at the sump areas in the mine.

4. The bunds/retaining wall constructed against the river/ water courses shall be thoroughly examined and maintained according to the principles of engineering so that there occurs no breach during the incessant rains in the catchment area.

5. Proper fencing shall be maintained against the sump and the waterlogged old workings so that there is no unauthorized / inadvertent entry into such workings by any person.

6. Pontoon pumps shall be so maintained, that the necessity for the persons to go near the pumps for operation and all the repair/maintenance works is almost avoided. A proper safe operating procedure (SOP) to be framed and implemented for the repair and maintenance of the pumps near the sumps.

7. The travelling roads in the opencast mines shall be so designed that there is no danger to the persons from the water flowing into the sumps during the rains.

8. The haul roads passing by the side of waterlogged workings/sumps shall be suitably guarded by berm/ parapet wall against the vehicle drivers inadvertently driving into such workings.

9. A mechanism with adequate manpower to be established for inspection of surface area over the depillared panels and old workings for formation of cracks, if any, and the cracks shall be immediately filled up to prevent water entering into the underground workings.

10. A close liasoning and communication with local meteorological department, water dams/ reservoir authorities shall be established to get alert of heavy rainfall, rise of water level and release of water from water dams etc.

I solicit your commitment in the effective implementation of the measures circulated, in the interest of safety of persons employed in the mines.

Sd/-

Director General of Mines Safety

सत्यमेव जयते

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

आज़ादी का अमृत महोत्सव

No. DGMS (Tech) (SOMA)/ Circular No. 03 Dhanbad dated, 21/08/ 2024.

To

All Owners, Agents and Managers of Opencast Mines Coal Mines

Subject: Ensuring Safety in Opencast Coal Mines: Preventing Accidents Involving Wheeled Trackless Transportation Machinery.

I invite your attention to the alarming increase in accidents involving wheeled trackless transportation machinery, specifically dumpers, tippers, etc., in opencast coal mines. The analysis of fatal accidents in 2023 revealed that 36% of them were caused by dumpers, tippers, trucks, and similar vehicles. Among these accidents, 46% were due to run-overs, 23% were caused by being hit by dumpers, 15% by head-on collisions, 8% by toppling, and 8% by other causes, such as the fall of dumpers from a height.

I urge your immediate attention to the following incidents occurred this year, illustrating the urgent need for action.

Few Accident cases:

1. While an empty dumper was being parked in the parking yard of an opencast coal mine, another dumper operator, who was present in the parking yard after parking his dumper, was run over by it and succumbed almost instantly.

2. While a tipper was on the way back to the opencast coal mine after unloading coal at SILO bunker, the operator lost his control over the tipper in the process of negotiating a curve along the road due to over speeding and hit an abandoned building adjacent to the road resulting in his fatal injury at the spot.

3. While driving a loaded water tanker from the water loading point to the workshop for scheduled maintenance, the operator stopped the water tanker on the haul road having a mild gradient (1 in 22) in an opencast coal mine, got down the ladder located at the front side of the water tanker, fell down on the ground. Meanwhile, the water tanker moved forward and rolled over him, and he succumbed to his injuries almost instantly.

4. While a CSIF person entered the dump yard unauthorisedly, he was run over by a dumper.

5. While a hired Bolero vehicle, driven by an untrained and unauthorized driver with six employees, was overtaking a 100T Dumper on the haul road approaching towards an overburden loading face in an opencast coal mine; it was hit, toppled, and dragged for about 6m by the Dumper, inflicting fatal injuries to three persons and serious bodily injuries to three persons.

6. While a jeep camper was stopped along the haul road, it was hit by a dumper leading to the death of 2 persons.

7. While a tipper was moving along the haul road, it hit another tipper, leading to a head-to- tail collision of tippers causing the death of the tipper operator.

8. While a tipper operator got down from the tipper at the working face in an opencast coal mine, the tipper started moving down the gradient, and when the operator tried to board the moving tipper, it collided with another tipper parked idle aside, crushing the operator in between and causing him fatal injury.

9. While a person engaged for guiding unloading of dumpers carrying overburden to form a platform for the coal stock yard near the CHP was taking rest in that area, inadvertently overburden was dumped over him, inflicting fatal injuries.

10. While a supervisor was standing aside a haul road, a tipper hit him.

All these accidents could have been prevented had the following statutory provisions been complied:

Procedure, Compliance and Documentation:

1. If the dumper operator had followed the Safe Operating Procedures (SOP) framed for dumper operation and given an audible warning signal while parking the dumper in the parking yard, as required under Regulations 63(g) of the Coal Mines Regulations, 2017.

2. If the parking brake had been applied by the operator while getting down from the Tipper, as per SOP issued for Tipper operation under Reg. 110 of the Coal Mines Regulations, 2017.

3. If the Tipper had been operated on the left side of the road and carefully within speed limits, thereby following the traffic rules as per Reg. 63(1)(d); Reg. 40(1) and Reg. 239 of the Coal Mines Regulations, 2017.

4. If untrained and unauthorized drivers without valid driving licenses had not been allowed to drive light motor vehicles, thus not negligently endangering the lives of persons riding them, as required under Regulation 239 read with Regulation 40(1) and Regulation 109(1) of the Coal Mines Regulations, 2017, read with the traffic rules issued by the Manager.

5. If authorization had been issued by the Manager to the drivers operating light motor vehicles in the mine, as required under Regulation 35(5) of the Coal Mines Regulations, 2017.

6. If the provision of fail-safe brake had been ensured before deploying the Tipper into operation, as per Gazette notification G.S.R. 987(E), Dhanbad, the 1st October, 2018, on "Safety features and devices to be provided in Heavy Earth Moving Machinery (HEMM) including trucks and tippers" under Reg. 216(2) of the Coal Mines Regulations, 2017.

7. If a separate road had been provided for Light Motor Vehicles plying in the mine, as required under Regulation 101 of Coal Mines Regulations, 2017, read with clause no.7 of the gazette notification no. G.S.R. 976(E), Dhanbad, the 1st October, 2018 on "Conditions for Haul Roads" under Regulation 101 of the Coal Mines Regulations 2017

8. If the Dumper had been provided with suitable blind spot mirrors or cameras to cover all blind areas and a proper Proximity warning system to warn the Operator or an anti-collision device been provided as required under the Regulation 216(2) of the Coal Mines Regulations, 2017, read with gazette notification No. G.S.R. 987(E) Dhanbad, the 1st October, 2018 on "Safety features and devices to be provided in Heavy Earth Moving Machinery (HEMM) including trucks and tippers".

Preventing Unauthorized Access/ Access without safety:

1. If the system of recording names in the register before proceeding to work had been implemented for hired light motor vehicle drivers, as required under Regulation 40(3) of the Coal Mines Regulations, 2017.

2. If the hired light motor vehicles had been provided with suitable red flags or flasher lights to improve visibility to Dumper Operators, thus not negligently endangering the lives of the persons riding them, as required under Regulation 239 the Coal Mines Regulations, 2017 read with the Safety Management Plan prepared by mine management.

3. If adequate lighting arrangements had been ensured, as required under Regulation 178 read with Government Gazette Notification No. 981(E) dated 01.10.2018.

4. If individuals had not entered unauthorized places.

5. If pedestrians had been prevented on haul roads.

Training:

1. If copies of transport rules had been handed over to light motor vehicle drivers and their compliance ensured, as required under Regulation 109(2) (3) of the Coal Mines Regulations, 2017.

2. If vocational training had been imparted to light motor vehicle drivers before allowing them to duty in the mine, as required under Rule 6(1) of the Mines Vocational Training Rules, 1966, read with Regulation 39(2)(a) 217(2) of Coal Mines Regulations, 2017.

3. If the SOP framed for Motor grader/Water tanker operations had been followed, particularly when it was required to get down from the Water Tanker. The driver would follow the operating procedure to shut off a running water tanker like engaging the parking brake before the ignition switch is turned off, applying and retaining the service brake till the parking brake is engaged. Extra precaution would be taken by giving sufficient jam on both sides of the wheel if it was unavoidable to park on a gradient to prevent inadvertent movement of the water tanker, as required under Regulation 110 of the Coal Mines Regulations, 2017.

Supervision and awareness:

1. If it had been ensured that the place of coal stock yard and persons engaged there were placed under the charge of a statutory supervisor, in compliance with Regulation 129(1) of Coal Mines Regulations 2017.

2. If employees had taken reasonable care for their own safety by not entering the operating area of the dumpers, thus not endangering their own safety, in compliance with Regulation 239 read with Regulation 40(1), 40(4)(a) of the Coal Mines Regulations, 2017.

3. If transport rules had been followed, maintaining an adequate distance from other vehicles.

I am confident that taking appropriate steps will go a long way in preventing accidents involving wheeled trackless transportation machinery in opencast coal mines.

Sd/-

Director General of Mines Safety &
Chief Inspector of Mines

आज़ादी का अमृत महोत्सव

भारत सरकार/Government of India
श्रम एवं रोजगार मंत्रालय/Ministry of Labour & Employment
खान सुरक्षा महानिदेशालय/Directorate General of Mines Safety
धनबाद -826001 / Dhanbad-826001

No. DGMS/OH/ (Tech) Circular No. 04 Dhanbad, Dated 21/08/ 2024

To
The Owners, Agents and Managers of all Mines

Subject: Acceptance of Digital Radiography in Statutory Medical Examination of Mine employees conducted under Mines Rule 29 F of 1955

1. Introduction

Chest radiographs are invariably essential for the detection of Dust induced Lung diseases including pneumoconiosis amongst Miners involved in dusty trades. As on date, conventional film screen radiograph (FSR) technology is being allowed for all statutory medical examinations like PME/IME, for ILO classification of the Chest Radiographs as per DGMS Circular No. DGMS (Tech.) No.04 of 2007, dated 11/05/2007. Accordingly all PME Centers of the Mines were to ensure the availability of a set of standard ILO International Radiograph 2000, for screening and classification of chest radiographs, for diagnosis of Pneumoconiosis.

In clinical practice and public health surveillance, digital chest radiographs (DR) presented on medical-grade monitors have largely replaced the conventional film-screen radiograph (FSR) technology. Though, conventional radiography is still used more widely than digital radiography but this dominance is fast dwindling.

The reasons behind the declining popularity of conventional radiography are—fixed dose latitude, fixed non-linear grey scale response, and limited potential for reducing dose to the patient. All these parameters limit the information that can be captured on film. The images cannot be changed in contrast once they have been processed. Apart from this, film is expensive, uses hazardous materials for processing, is labour intensive, and long term storage and retrieval of film is difficult. Further conventional radiography is not compatible with the picture archiving and communication systems (PACS).

The *International Labour Office (ILO) Guidelines for the Classification of the Pneumoconiosis* has been an invaluable tool for standardization of interpretations of chest radiographs for epidemiologic studies of the Pneumoconiosis. To enhance accuracy and precision in applying the ILO classification scoring system, readers are required to perform a side-by-side comparison of each individual worker's radiograph to one or more prototypical chest images, which illustrate a variety of types and severity of radiographic abnormalities induced by dust inhalation. The ILO classification system includes a standard set of chest images for comparison purposes.

Until recently, the ILO classification system only provided a set of standard images in the film-screen radiograph (FSR) format. However, in 2011, the ILO revised its guidelines to "extend the applicability of the Classification to digital radiographic images of the chest". In the 2011 revision of the classification, the ILO included a set of electronic image files (ILO Standard Digital Images [2011-D]) that was digitized from the film-based standards included in the 2000 revision of the classification. Subsequently in 2022 the revised edition of the Guidelines for the use of the ILO International Classification of Radiographs of Pneumoconiosis, which is accompanied by one set of digitally acquired radiographic images, was introduced by ILO after collaboration with NIOSH. This set consists of 23 radiographic images, which are called The ILO 2022 standard digital images:

In view of the current scenario, it has been decided to allow Digital Radiography, for all statutory medical examinations like Pre-employment Medical Examination/Periodical Medical Examination after fulfilling protocols specified below, based on the reference standards issued by ILO, in addition to the Conventional film screen radiographs (FSR), being used currently.

2. **Viewing Principles of Digital Radiographs:**

When viewing and classifying a subject's digital image (also known as "soft copy"), a high resolution, medical-grade flat-panel monitors designed for diagnostic radiology, is essential.

The intensity of illumination should be uniform all over the total surface of the high resolution radiology monitors used to view the chest images to be classified.

While classifying digital images, the ILO 2022 digitally acquired standard images should be displayed as provided, without alteration.

ILO digital images must be close enough for the observer to see opacities only 1 mm in diameter, that is, a distance of about 250 mm. It is also essential to view the entire chest image.

The observer should be seated comfortably. The viewing surfaces must be clean. The general illumination in the room should be low, without direct daylight. The room should be quiet, comfortable and free from distractions.

The diagonal display should be at least 21" (54 cm) per image, with a ratio of maximum to minimum luminance at least 50; a maximum luminance of at least 250 candelas per m^2; pixel pitch no greater than 210 µm; and with resolution at least 2.5 line-pairs per mm.

The subject and ILO 2022 digital images should be displayed simultaneously, similarly sized, side-by-side.

Further, for display, storage and classification of digital chest images/ Radiographs, recent version of the Digital Imaging and Communications in Medicine (DICOM) standards are required.

Examples of approaches required to be avoided for viewing digital images include:

- Displaying the images on a personal computer screen rather than on a medical-grade flat-panel monitor designed for diagnostic radiology.
- Comparing the subject digital image to ILO standard analog radiographs displayed on a view box.

- Viewing the subject digital image, or the ILO 2022 digital images, or both in formats reduced to less than two-thirds of their full size.
- Using digital images printed on film or paper for classification. As with all radiographic viewing activities, procedures should be followed to ensure an appropriate environment, including restriction of ambient light sources and other distracting factors.

3. Image processing

Digital radiographic systems vary in the approaches taken to address the display quality of digital chest images. Image processing software continues to evolve. Imaging systems should comply with the standards set by their countries respective radiologic societies and professional organizations. The NIOSH Guideline "Application of Digital Radiography for the Detection and Classification of Pneumoconiosis" is a useful resource and recommends that image enhancement functions be discouraged as chest images should appear similar to traditional film screen radiographs when displayed. No specific recommendations are made by the ILO regarding the selection of digital systems. Performance testing and monitoring should be used to evaluate the ability to produce quality images for any combination of hardware, exposure parameters and software. Facilities providing images for classification should employ a program for continual quality assurance consistent with national practices and standards. Staff at facilities that perform digital chest radiography for pneumoconiosis classification should review each image to ensure optimal quality.

4. Image display

Good image quality is essential for accurate classification of digital chest radiographs. Maintenance, assessment, and optimization of the image display monitors and all other components of the digital radiographic systems should be undertaken periodically, as recommended or specified by manufacturers, professional organizations, or governmental agencies.

5. Data recording, storage and security

Digital images should be securely archived and transferred in a manner that permits retrieval of their original appearance, in compliance with national practices and standards. Standard measures to prevent unauthorized access to data should be employed, for instance by password-protected access and rigorous security precautions for transfers through data networks.

All the Owners, Agents and managers are here by informed that henceforth, Digital Radiography shall be permissible as part of statutory medical examination for mine employees, once it is conducted following the standards and guidelines mentioned above.

Sd/-

Director General of Mines Safety &

Chief Inspector of Mines

सत्यमेव जयते

आज़ादी का अमृत महोत्सव

भारतसरकार / Government of India
श्रमएवंरोजगारमंत्रालय/ Ministry of Labour & Employment
खानसुरक्षामहानिदेशालय / Directorate General of Mines Safety

Dated : 23/08/2024

DGMS Circular No. 05 of 2024

To
The Owner/Agent/Manager of all Coal/Metal/Oil/Gas Mines

Subject: Guidelines for determining adequacy of Electrical supervisors and Electricians on duty in every mine or oilfields while electricity is being used. [Sub-regulation (1) and (3) of regulation (117) of CEAR - 2023]

Electrical supervisors play an important role within a mining operation. They are responsible not only for ensuring electrical safety but also for adhering to regulatory obligations. Consequently, an electrical supervisor should be able to understand and apply relevant legislation, standards, codes of practice, and guidelines.

According to sub-regulation (1) and sub-regulation (3) of regulation 117 of the Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2023, significant updates were introduced over the previous CEAR 2010 regulations, specifically regarding the adequacy of electrical supervisors and electricians in mines and oilfields. The updates were enacted in the newly notified Central Electricity Authority (Measures Relating to Safety and Electric Supply) Regulations, 2023, and Directorate General of Mines Safety was bestowed with the power of formulating the guidelines regarding this.

To develop the guidelines, numerous meetings were held with stakeholders, including experts from the coal, metal, and oil mining sectors. Their input was incorporated into the framework. Key considerations for determining the adequacy of supervisors and electricians included:

- Establishing appropriate ratios of supervisors and electricians to the area covered and operational shifts/hours.
- Ensuring the presence of adequately trained personnel during emergencies.
- The volume of deployment of electrically operated HEMM along with the total installed capacity.

In compliance with sub-regulation (1) of regulation 117 of the Central Electricity Authority (Measures Relating to Safety and Electric Supply) Regulations, 2023, the following guidelines on the adequacy of electrical supervisors and electricians in mines and oilfields have been established.

I) **Adequacy of Electrical Supervisors**

Adequate number of Electrical supervisors shall be appointed in a mine for conducting the operation and maintenance works of electrically operated machinery/ equipment/ apparatus in accordance with the provisions of The Central Electricity authority (Measures relating to Safety and Electric supply) Regulations,2023.

1. In case of belowground mine having conventional and semi-mechanized workings, at least one electrical supervisor shall be appointed in each working district and associated electrical apparatus/substations in each shift of operation/ maintenance.

2. In case of belowground mechanized mines consisting of long wall machinery, continuous miners, Blasting Gallery or alike equipment, at least two electrical supervisors shall be appointed for each working district/panel and associated electrical apparatus/substations in each shift of operation/ maintenance.

3. In opencast mine consisting of Dragline, Bucket wheel excavators, High-capacity shovels, Surface Miner or any alike electrical equipment; at least one electrical supervisor shall be appointed for each such electrical machinery/ equipment inclusive of their switchgear based on size & type of equipment in each shift of operation/ maintenance.

   Provided that where the aggregate capacity of machinery is less than 2MVA, the HEMM and associated switchgear can be grouped to bring under one supervisor.

4. In opencast mine consisting of HEMM such as Electrically operated Shovels & Drilling Machines, associated switchgear, distribution lines, substations etc., at least one electrical supervisor shall be appointed in each shift of operation/maintenance for maximum up to six numbers of such electrically operated machinery/ equipment.

5. In case of opencast mines consisting of small and conventional electrical machinery such as substation equipment, distribution lines, production machinery, pump installations or any alike equipment, one electrical supervisor shall be appointed in each shift of operation/maintenance.

6. In case of oil/ gas/ coal/ Renewable energy based captive power plants with associated substations which are supplying electricity to mine installations; one electrical supervisor in general shift of operation/ maintenance shall be appointed.

   Provided that where the aggregate capacity of power plant is more than 10 MW, one electrical supervisor in each shift of operation/ maintenance shall be appointed.

7. In case of oil fields, where electrically operated drilling rigs inclusive of generators, substation apparatus and other electrical machinery are in use, one electrical supervisor in each shift of operation/ maintenance per rig shall be appointed.

8. In oil fields of production installations, group gathering stations along with associated wells or any alike installations where substations and electrically operated equipment are in use, at least one electrical supervisor in each shift of operation/ maintenance shall be appointed.

9. For the surface installations of a mine consisting of substations, switch stations, distribution lines and other electrically operated machinery/ equipment, at least one electrical supervisor in each shift shall be appointed for operation/maintenance.

   Provided that where the aggregated installed capacity of substations is more than 20 MVA, one additional electrical supervisor shall be appointed in each shift of operation/maintenance.

   Provided further that where the mine having ancillary installations like beneficiation plant, Railway sidings, coal handling plant, and other alike process equipment's one additional electrical supervisor shall be appointed in each shift for installations of aggregate load exceeding every 2MW.

10. All the appointed Electrical supervisors shall be designated specifying area of jurisdiction by the competent authority.

11. In special cases, the electrical inspector of mines may give relaxation for the appointment of number of electrical supervisors if he is satisfied that proper supervision can be exercised with such reduced numbers as he may deem fit.

II) <u>Adequacy of Electricians.</u>

Adequate number of electricians shall be appointed in a mine for conducting the operation and maintenance works of electrically operated machinery/ equipment/ apparatus in accordance with the provisions of The Central Electricity authority (Measures relating to Safety and Electric supply) Regulations, 2023.

1. In case of belowground mine having conventional and semi-mechanized workings, at least two electricians shall be appointed for each working district in each shift of operation/ maintenance.

2. In case of belowground mechanized mines consisting of Long wall machinery, continuous miners, Blasting Gallery or alike equipment, at least four electricians shall be appointed for each working district/panel and associated electrical apparatus/substations in each shift of operation/ maintenance.

3. In opencast mine consisting of Dragline, Bucket wheel excavators, High-capacity shovels or any alike equipment, at least two electricians shall be appointed for each such electrical machinery/ equipment inclusive of their switchgear based on size & type of equipment in each shift of operation/ maintenance.

   Provided that where the aggregate capacity of machinery is less than 1MVA, the HEMM and associated switchgear can be grouped to bring under one electrician.

4. In opencast mine consisting of HEMM such as Electrically operated Shovels & Drilling Machines, associated switchgear, distribution lines, substations etc., at least one electrician shall be appointed in each shift of operation/ maintenance for maximum up to two numbers of such electrically operated machinery/ equipment.

5. In case of opencast mines consisting of small and conventional electrical machinery such as substation equipment, distribution lines, production machinery, pump installations or any alike equipment are in use, at least one electrician shall be

appointed in each shift of operation/maintenance and additional electrician shall be appointed based on the type and size of installations and the area to be covered.

6. In the case of oil/ gas/ coal/ renewable energy based captive power plants with associated substations which are supplying electricity to mine installations, at least one electrician in each shift of operation/ maintenance shall be appointed.

   Provided that where the aggregate capacity of power plant is more than10 MW, one additional electrician in each shift of operation/ maintenance shall be appointed.

7. In the case of oil mines, where electrically operated drilling rigs/workover rigs inclusive of generators, substation apparatus and other electrical machinery are in use, one electrician in each shift of operation/ maintenance per rig shall be appointed.

8. In oil fields of production installations, group gathering stations, well or any alike installations, where substations and electrically operated equipment are in use, at least one electrician in each shift of operation/ maintenance shall be appointed. Where the distance between such installations exceeds 1KM, an additional electrician shall be appointed based on the type and size of installations and the area to be covered.

9. For the surface installations of a mine consisting of substations, switch stations, distribution lines and other electrically operated machinery/ equipment, at least two electricians in each shift shall be appointed for operation/ maintenance.

   Provided that where the aggregated capacity of substations is more than 20MVA an additional electrician shall be appointed in each shift of operation/ maintenance.

   Provided further that where the mine having ancillary installations like beneficiation plant, Railway sidings, coal handling plant, and other alike process equipment's one additional electrician shall be appointed in each shift for installations of aggregate load exceeding every 1MW.

   Therefore, in the interest of safety, the owner, agent, and manager of all mines and oilfields where electricity is being used are advised to strictly adhere to the above guidelines for appointing electrical supervisors and electricians.

Sd/-
Director General of Mines Safety

सत्यमेव जयते

आज़ादी का अमृत महोत्सव

भारतसरकार / Government of India
श्रमएवंरोजगारमंत्रालय/ Ministry of Labour & Employment
खानसुरक्षामहानिदेशालय / Directorate General of Mines Safety

dated : 23/08/2024

DGMS Circular No. 06 of 2024

To
The Owner/Agent/Manager of all Coal/Metal/Oil/Gas Mines

Subject: Training Syllabus for Electrical Engineers, Electrical supervisors and Electricians who have been engaged for operation and maintenance of electrical installations in mines and oilfields. [Regulation (118) of CEAR - 2023]

An engineer, electrical supervisor, or electrician working in a mine must be familiar with various types of electrical installations, components, and their functions. This knowledge is crucial for efficiently supervising electrical system installation, maintenance, and repairs, while ensuring the highest safety and performance standards. Staying updated on advancements in electrical systems and technologies enables them to provide effective guidance to the personnel under their supervision.

According to regulation 118 of the Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2023, significant updates were introduced over the previous CEAR 2010 regulations, specifically a new regulation has been added for training of personnel engaged for operation and maintenance of electrical installations in mines and oilfields. This syllabus aims to ensure that all personnel engaged in electrical work in mines possess the necessary knowledge and skills. The updates were enacted in the newly notified Central Electricity Authority (Measures Relating to Safety and Electric Supply) Regulations, 2023, and Directorate General of Mines Safety was bestowed with the power of formulating the guidelines regarding this.

To develop the syllabus, numerous meetings were held with stakeholders and experts from the coal, metal, and oil mining sectors, and their feedback was incorporated into the draft. Key components of the syllabus include fundamental concepts, theories, and principles; advanced electrical systems such as control systems and automation; comprehensive safety procedures, risk assessment, and mitigation; familiarization with CEAR 2023 regulations and other relevant standards; and practical training.

In accordance with sub-regulation (1) of regulation 118 of the Central Electricity Authority (Measures Relating to Safety and Electric Supply) Regulations, 2023, the following syllabus

has been developed for training electrical engineers, supervisors, and electricians involved in the operation and maintenance of electrical installations in mines and oilfields.

TRAINING SYLLABUS FOR ELECTRICAL SUPERVISOR AND ELECTRICIANS OF MINES

General Instructions

1) The content of training courses and on-the-job training / practical training may be designed keeping in view the technical requirements as applicable.

2) The periodical refresher training may be customized as per the assessment and requirement.

3) After the lecture course is completed, the trainees are required to be taken on visit to a few modern power stations, testing labs, mechanized mine, manufacturer facilities of transformer, motors, switchgears etc.,

4) Facilities of training institute / for creation of training institute:

a) The training institute shall have devoted facilities -building, residential and recreation facilities.

b) The training institute shall have a full time Head of institute and adequate number of teaching faculty /staff. The institute may engage visiting faculty who are having experience in mining operations/OEMs/PSUs/Private Sector in order to enhance the operating skills of the trainee and for the chapters related to mining operations faculty having experience in mining operations shall be engaged.

c) The training institute shall have facilities such as, adequate number of lecture halls, seminar and conference hall/ auditorium, library, computer center, workshop, laboratories, Simulators, Virtual Reality (VR) labs, animation videos etc.,

d) The institute shall have facilities to arrange refresher courses to Electrical Persons such as Engineer, Electrical Supervisor and Electricians.

e) The institute shall fill up the Assessment form towards the performance of each participant.

5) The threshold marks for passing through the evaluation test, inclusive of written and practical test shall not be less than 50% of total marks.

Part-I

TRAINING SYLLABUS FOR ELECTRICAL SUPERVISOR OF MINES (FOR COAL OR METAL MINES)

Sl.No	Particulars	Number of Hours
1	Electrical Machineries: I. Operation, maintenance and pre-commissioning test of different types of motors (AC&DC). II. Operation, maintenance and pre-commissioning test of different types of generators. III. Operation, maintenance and pre-commissioning tests of different types of transformers. IV. Machineries/Equipment related to renewable generating stations. V. Battery operated vehicles and Locomotives.	3
2	Electric Drives and Control: I. Operation maintenance of Different types of starters including AC Drives such as VFDs etc., DC Drives, soft starters etc., II. PLC, SCADA and DCS	2
3	Switchgear and protective devices: I. Operation maintenance, pre-commissioning tests of different types of circuit breakers. II. Different types of protective schemes/protective devices and their operation maintenance and relay co-ordination.	2
4	Earthing system: Requirements, types of earthing, maintenance, chemical earthing and relevant provisions of IS - 3043.	2
5	Neutral system of power supply: I. solid neutral earthing, restricted neutral earthing, isolated neutral earthing, advantages /disadvantages. II. provisions of the Regulation for suitably designed restricted neutral system of power supply including neutral-ground monitoring protection system.	3
6	Design and layout of sub-station, Safety in sub-station, switchyard and switchboards: i. Safe working clearance. ii. Guarding of live apparatus. iii. Standard Operating Procedure (SOP) operation/maintenance of circuit breakers, transformers, isolators, surge arresters, instrument transformers, storage tanks etc.,	2
7	Operation and maintenance of substations and generating stations including maintenance of storage battery and related auxiliaries.	2
8	Operation, maintenance of overhead lines and underground cables I. Safety measures in over headlines II. Types of stays, its markings, grouting, stay insulator, binding etc., III. Types of guarding and clearances, earth/neutral wire, anti- climbing devices, and their erection. IV. Selection and fixing of control devices viz. Linked switches, fuses,	3

	isolators, earthing switches and lightning arrestors/surge diverters etc. V. SOPs for safe working on over headlines. VI. Cables and conductors, their classification, construction, insulation types, laying, mining type cables and the related standards, cable jointing techniques, terminations and junction boxes	
9	Electrical apparatus and machinery for mine installation (as applicable for a particular type of mine Oil/Coal/Metal) I. Winders, man riding system, cranes, EOTs etc., II. Electrically operated HEMM, portable transportable machinery, dragline, bucket wheel excavator, SDL, LHD, Road header, shearer, continuous miner, UDMs etc., III. Salient features of explosion proof protections like, Flameproof, intrinsically safe, increased safety, pressurized enclosure apparatus etc., for use in hazardous atmosphere of mine (coal/Oil) and relevant provisions of the IS/IEC 60079 series of standards, operation and maintenance of the flameproof and intrinsically safe apparatus. IV. Use of RF Electrical equipment in hazardous areas. V. LMD, Environment monitoring system VI. Circuit diagram of Drill control panel, GEB, different types of circuit breakers, starters, Lighting & Signaling unit. VII. Safety requirement of belt conveyor system installed in the belowground mine, OCP. VIII. Safety requirements of Drilling Rig in oil mine IX. Any other special type of Electrical machinery / apparatus used in mines(coal/oil/metal)	5
10	General safety: I. Procedure for obtaining permission to work for carrying out operations and maintenance of electrical equipment (permit to work as per**IS:5216)**. II. Safety in electrical workshop III. Firefighting equipment, their type, use and periodical maintenance, indicators, recorders etc. IV. First aid training, resuscitation of persons suffering from electric shock etc., V. Various Lightning protections.	3
11	Legislation/statutes as amended from time to time: I. Provisions of Central Electricity Authority (Measures relating to safety and electric supply), Regulations 2023. II. Provisions of ElectricityAct,2003 III. Relevant provisions of the mines Act,1952 IV. Relevant provisions of the Coal MinesRegulation,2017. V. Relevant provisions of Metalliferous Mines Regulation,1961	3

12	On-Site emergency management plan in case of contingency related to electricity: I. Emergency response procedure including response to off-site emergency management plan and crisis and disaster management plan;	2
	II. Risk assessment information giving possible nature of incidents and events giving rise to emergency conditions, risk analysis and impact assessment;	
13	Testing and Record keeping I. Maintenance of Supervisors log sheet II. Register of designated persons III. History sheets of the electrical equipment/apparatus with regard to the repair/maintenance IV. Preparation, Maintaining and updating the circuit diagram/Electrical Plan of the installations and electrical apparatus like breakers, starters etc. V. Testing and recording of CTs, relays using primary and secondary injection kit. VI. Register for maintenance of flameproof and intrinsically safe apparatus (coal/Oil mine). VII. Testing and recording of Earthing system. VIII. Measurement of Insulation Resistance, earth electrode resistance IX. Maintenance of Battery bank	4
14	On Job training/ Practical/Laboratory Training I. Practical tests (type, routine) of transformer, motors, cables, switchgears etc., II. Testing of CTs and relays through primary and secondary injection kits. III. First aid training IV. Operation of different types of fire extinguishers.	4
15	Case studies related to Electrical accidents	1
16	Field Visit	6
17	Written Examination to evaluate performance, feedback on training	1
Duration of the training course in hours		48

PART-II

TRAINING SYLLABUS FOR ELECTRICAL SUPERVISOR OF MINES (FOR OIL MINES)

Sl. No.	Particulars	Number of Hours
1	Brief introduction of AC/DC Motors, alternators, transformers and their application, operation and maintenance.	3
2	Brief Introduction of Switchgear, Protection techniques, operation and maintenance.	3
3	I. Earthing system: Requirements, types of earthing, maintenance, chemical earthing and relevant provisions of IS -3043. II. Neutral system of power supply: Solid neutral earthing, restricted neutral earthing, isolated neutral earthing, advantages/ disadvantages;	4
4	Hazardous area classification and selection of equipment for hazardous area. Salient features of Flameproof and intrinsically safe apparatus for use in hazardous area and relevant provisions of the IS/IEC 60079 series of standards, operation and maintenance of the flameproof, intrinsically safe apparatus and other apparatus conforming to the relevant Ex standards	3
5	Design layout, Safety in sub-station, switchyard and switchboards i. Safe working clearance. ii. Guarding of live apparatus. Standard Operating Procedure (SOP) of circuit breakers, transformers, isolators, surge arresters, instrument transformers, storage tanks etc.	4
6	a) Operation, maintenance of overhead lines and underground cables b) Safety measures in over headlines c) Types of stays, its markings, grouting, stay insulator, binding etc., d) Types of guarding and clearances, earth/neutral wire, anti- climbing devices, and their erection. e) Selection and fixing of control devices viz. Linked switches, fuses, isolators, and earthing switches, lightning arrestors and surge diverters. f) Cables and conductors, their classification, construction, insulation types, laying, mining type cables and the related standards, cable jointing techniques and junction boxes	4
7	General safety: I. General Safety to be observed in oil and gas mine and adherence to operator's Safety Rules. II. Firefighting equipment, their type, use and periodical maintenance, indicators, and recorders etc. III. First aid training, resuscitation of persons suffering from electric shock etc. IV. Salient features of explosion proof protections like, Flameproof, intrinsically safe, increased safety, pressurized enclosure apparatus etc., for use in hazardous atmosphere of mine (coal/Oil) and relevant provisions of the IS/IEC 60079 series of standards,	4

	operation and maintenance of the flameproof and intrinsically safe apparatus. V.Lock-out/Tag out (permit to work as per IS:5216) and PTW system	
8	Legislation: I. Provisions of Central Electricity Authority (measures relating to safety and electric supply), Regulations2023. II. Provisions of ElectricityAct,2003 III. Relevant provisions of the mines Act,1952 IV. Relevant provisions of Oil Mines Regulation, 1984 (amended version)	4
9	Testing and Record keeping I. Maintenance of Supervisors log sheet II. Register of designated persons III. History sheets of the electrical equipment/apparatus with regard to the repair/maintenance IV. Preparation, Maintaining and updating the circuit diagram/Electrical Plan of the installations and electrical apparatus like breakers, starters etc. V. Testing and recording of CTs, relays using primary and secondary injection kit. VI. Register for maintenance of flameproof and intrinsically safe apparatus (coal/Oil mine). VII. Testing and recording of Earthing system. VIII. Measurement of Insulation Resistance, earth electrode resistance IX. Maintenance of Battery bank	4
10	Case Studies related to Electrical accidents.	3
11	On Job training/ Practical/Laboratory Training I. Practical tests (type, routine) of transformer, motors, cables, switchgears etc., II. Testing of CTs and relays through primary and secondary injection kits. III. First aid training I. Operation of different types of fire extinguishers.	5
12	Field Visit	6
13	Written examination to evaluate the performance for awarding the License	1
	Total	48

PART-III

TRAINING SYLLABUS FOR ELECTRICIANS OF MINES

Sl. No	Particulars	Number of Hours
1	Basic Electrical Engineering: (i) Symbols of various electrical items/machines/elements (ii) Sketches and circuit diagrams for the electrical systems/installations i.e. different types of distribution networks, starters and other electrical apparatus (iii) Different types of PPEs, tools, and devices being used to maintain the electrical installations/apparatus such as Insulation tester, earth tester, multimeter etc.,	3
2	Electrical Machineries: I. Different types of motors (AC &DC), their applications, operation and maintenance II. Different types of generators, operation and maintenance. III. Different types of transformers, cooling of transformers, transformer oil, protective devices in the transformer, the common causes of failures, operation &maintenance. IV. Renewable Energy Generation.	3
3	Electric Drives and Control: Starting and speed control of motors, different types of starters and their operation maintenance	2
4	Switchgear and protective devices: a) General Idea on Operation & Maintenance of different types of circuit breakers, CT/PTs, b) General idea on different types of relays such as over-current, earth fault relays, broken conductor/negative sequence/ unbalance/single phasing preventer, Differential protection etc., c) Various protective schemes with circuit diagram: for motors, generators, transformers, capacitor banks etc.,	3
6	Earthing system: Requirements, types of earthing, maintenance, chemical earthing and relevant provisions of IS - 3043.	2
7	Neutral system of power supply: I. Solid neutral earthing, restricted neutral earthing, isolated neutral earthing, advantages /disadvantages II. provisions of the Regulation for suitably designed restricted neutral system of power supply including neutral-ground monitoring protection system.	2
9	Operation and maintenance of substations and generating stations including maintenance of storage battery and related auxiliaries	3
10	Protection against voltage surges and lightning	1

11	Operation, maintenance of overhead lines and underground cables I. Safety measures in over headlines II. Types of stays, its markings, grouting, stay insulator, binding etc., III. Types of guarding and clearances, earth / neutral wire, anti-climbing devices and their installation /erection. IV. Selection and fixing of control devices viz. Linked switches, fuses, isolators, and earthing switches, lightning arrestors etc., V. Cables and conductors, their classification, construction, insulation types, laying, mining type cables and the related standards, cable jointing techniques and junction boxes	4
12	Electrical apparatus and machinery for mine installation (as applicable for a particular type of mine like Coal/Metal/Oil) I. Winders, man riding system, cranes II. Electrically operated HEMM, portable transportable machinery, dragline, bucket wheel excavator, SDL, LHD, Road header, shearer, continuous miner III. Salient features of Flameproof and intrinsically safe apparatus for use in hazardous atmosphere of mine (coal/Oil) and relevant provisions of the IS/IEC 60079 series of standards, operation and maintenance of the flameproof and intrinsically safe apparatus IV. LMD, Environment monitoring system V. Circuit diagram of Drill control panel, GEB, different types of circuit breakers, starters, Lighting & Signaling unit. VI. Safety requirements of belt conveyor system installed in the belowground coal mine, OCPs etc., VII. Safety requirements of Drilling Rig in oil mine VIII. Any other special type of Electrical machinery / apparatus used in mines (coal / oil / metal)	8
13	General safety: I. Procedure for obtaining permission to work for carrying out operations and maintenance of electrical equipment (Permit to work as per**IS:5216)**; II. Safety in electrical workshop III. Firefighting equipment, their type, use and periodical maintenance, indicators, and recorders etc., IV. First aid training, resuscitation of persons suffering from electric shock etc.,	4
14	Legislation/statutes as amended from time to time: Relevant regulations of Provisions of Central Electricity Authority (measures relating to safety and electric supply) Regulations, 2023	4
15	On Job training/ Practical/Laboratory Training I. Erection and pre commissioning testing of transformers, motors, generators, switchgear II. Measurement of earth resistance, insulation resistance etc., III. Testing of CTs, relays etc., IV. First aid training V. Operation of different types of fire extinguishers	7

16	Case Studies related to Electrical accidents	1
17	Written Examination to evaluate performance, feedback on training	1
Duration of the training course in hours		48

Part-IV

TRAINING SYLLABUS FOR ELECTRICAL ENGINEERS

Sl. No	Particulars	Number of Hours
1	**Power Transmission** **a.** Different types of Electric towers/poles. **b.** Conductors/Earth-wire and their accessories, types, configuration, transposition, selection criteria **c.** Insulators and hardware fittings: types, strength, details **d.** Right of way, CEA (Measures relating to Safety and Electric Supply) Regulations, 2023 and Acts, statutory clearances from other agencies, compensation, etc. **e.** Operation and Maintenance of Transmission Line: line patrolling, routine checks, filling logbooks, T & P, thermo-vision scanning, fault failure analysis, hot line maintenance, case studies.	2
2	**Sub - Stations (220kV/132kV/33kV)** (i)Types: generation sub-station, grid sub-station, mobile sub-station, gas insulated sub-station, indoor/outdoor, etc., ii)General arrangement and layout of switchyard, switching schemes, single line diagram. (iii) Power Transformers and Reactors: (a) Types: major components, constructional details, functions (b) Design and selection, specification and rating (c)Bushings, On Load Tap Changers (OLTC), Buchholz relay, conservator, breather, thermo syphon filter, indicators, etc. (d)Cooling arrangements - methods of cooling, pumps, fans, radiators, etc. (e) Transformer tests (f) Introduction to relevant Indian Standards **(iv)Switchgears and Introduction to relevant Indian Standard** (a) Circuit Breaker: Different types of circuit breakers and starters, selection parameters, ratings/ specifications, interlocks and introduction to relevant Indian Standard (b) Isolator: Types, earth switch, interlocks and Bus bar types, (d) CT/CVT/Lightning Arrestor/Lightning Mast: Types, constructional details, use, location, selection/design, ratings/specifications (f) Instrumentation and Protective Relays: types, functions, selection, ratings/ specifications, testing and setting of relays and knowledge of relevant Indian Standard. (h) Protection System Philosophy: types, design, protection schemes, tripping schemes, protection of transformers/reactors, motors, feeders, generator bus etc. and relay co-ordination.	5

	v)Grounding: types of grounding, earth testing and treatment, earth mat design, step potential, touch potentials, transfer potentials, neutral grounding factor. (vi)Auxiliary facilities (a) DG set (b) Firefighting system (c) Sub-Station Battery System and different types of auxiliary power supply (vii)Cables: types, control cables, power cables, layout, trench/gallery arrangement, cable ratings, selection, and cable termination and jointing. (viii) Compensating devices: shunt reactor/capacitor, series reactor/ capacitor, static var compensators (SVC) (ix) (a)Sub-station, Transformer and Reactor Maintenance: - Factors affecting the life of transformer/reactor, types of faults that can occur, reasons for breakdown, visual checks/ inspection/ preliminary testing of various components- oil sampling and testing, oil filtration, Dissolved Gas Analysis (DGA), maintenance Schedule, fault rectification, need for major overhaul and methods (b)Switchgear and Protection Maintenance : maintenance of CB, isolator, earth-switch, support insulators, CT/CVT, LA. Lightning Mast (LM), meters/ recorders, PLCC, protective relay maintenance, protection system maintenance (c) Maintenance of auxiliaries and other systems- battery and charging system, DG set, air conditioning plant, compressed air system, fire-fighting system, switchyard – lighting, control room, earth resistance testing, cables, compensating devices.	
3	Electrical Machineries: i. Operation, maintenance and pre-commissioning test of different types of motors (AC&DC). ii. Operation, maintenance and pre-commissioning test of different types of generators. iii. Operation, maintenance and pre-commissioning tests of different types of transformers. iv. Machineries/Equipment related to renewable generating stations. v. Battery operated vehicles and Locomotives.	2
4	Electric Drives and Control: (i) Operation maintenance of Different types of starters including AC Drives such as VFDs etc., DC Drives, soft starters etc., (ii) PLC, SCADA and DCS-Application in mines.	2
5	Earthing system: Requirements, types of earthing, maintenance, chemical earthing and relevant provisions of IS - 3043.	2
6	Neutral system of power supply: a. solid neutral earthing, restricted neutral earthing, isolated neutral earthing, advantages /disadvantages. b. provisions of the Regulation for suitably designed restricted neutral system of power supply including neutral-ground monitoring protection system.	3

7	Cables and conductors, their classification, construction, insulation types, laying, mining type cables and the related standards, cable jointing techniques, terminations and junction boxes.	
8	Electrical apparatus and machinery for mine installation (as applicable for a particular type of mine Oil/Coal/Metal) I. Winders, man riding system, cranes, EOTs etc., II. Electrically operated HEMM, portable transportable machinery, dragline, bucket wheel excavator, SDL, LHD, Road header, shearer, continuous miner, UDMs etc., III. Salient features of explosion proof protections like, Flameproof, intrinsically safe, increased safety, pressurized enclosure apparatus etc., for use in hazardous atmosphere of mine (coal/Oil) and relevant provisions of the IS/IEC 60079 series of standards, operation and maintenance of the flameproof and intrinsically safe apparatus. IV. Use of RF Electrical equipment in hazardous areas. V. LMD, Environment monitoring system VI. Circuit diagram of Drill control panel, GEB, different types of circuit breakers, starters, Lighting & Signaling unit. VII. Safety requirement of belt conveyor system installed in the belowground mine, OCP. VIII. Safety requirements of Drilling Rig in oil mine IX. Any other special type of Electrical machinery / apparatus used in mines(coal/oil/metal)	8
9	General safety: I. Procedure for obtaining permission to work for carrying out operations and maintenance of electrical equipment (permit to work as per**IS:5216)** and LOTO system. II. Safety in electrical workshop. III. Firefighting equipment, their type, use and periodical maintenance, indicators, recorders etc. IV. First aid training, resuscitation of persons suffering from electric shock etc., V. Lightning Phenomenon and various lightning protections. VI. Mine Lighting – design and layout methods.	4
10	Legislation/statutes as amended from time to time: I. Provisions of Central Electricity Authority (Measures relating to safety and electric supply), Regulations 2023. II. Provisions of ElectricityAct,2003 III. Relevant provisions of the mines Act,1952 IV. Relevant provisions of the Coal MinesRegulation,2017. V. Relevant provisions of Metalliferous Mines Regulation,1961 VI. Relevant provisions of the Oil MinesRegulation,2017. VII. Relevant Technical circulars of DGMS issued from time to time.	4

11	On-Site emergency management plan in case of contingency related to electricity: I. Emergency response procedure including response to off-site emergency management plan and crisis and disaster management plan. II. Risk assessment information giving possible nature of incidents and events giving rise to emergency conditions, risk analysis and impact assessment;	2
12	Testing and Record keeping a) Maintenance of Supervisors log sheet b) Register of designated persons c) History sheets of the electrical equipment/apparatus with regard to the repair/maintenance d) Preparation, Maintaining and updating the circuit diagram/Electrical Plan of the installations and electrical apparatus like breakers, starters etc. e) Testing and recording of CTs, relays using primary and secondary injection kit. f) Register for maintenance of flameproof and intrinsically safe apparatus (coal/Oil mine). g) Testing and recording of Earthing system. h) Measurement of Insulation Resistance, earth electrode resistance i) Maintenance of Battery bank j) Form I, II, III and IV as per CEAR-2023. k) Approval/Permission related documents l) Annual returns, Notices,	4
13	Case studies related to Electrical accidents	2
14	Field Visit	6
15	Written Examination to evaluate performance, feedback on training	2
Duration of the training course in hours		48

Therefore, the owner, agent, and manager of all mines and oilfields where electricity is used are advised to arrange training for their personnel involved in the operation and maintenance of electrical installations, in accordance with the syllabus outlined above.

Sd/-
Director General of Mines Safety