14
CHAPTER

SAFETY IN COAL MINES

Safety in Coal Mines

National Coal Mines Safety Report Portal

The National Coal Mines Safety Report Portal, developed by Ministry of Coal, under the guidance of the High-Level Expert Committee on Safety in Coal Mines, represents a significant advancement in coal mine safety management. The portal monitors actions based on recommendations from various inquiries, aiming to reduce accidents and improve safety practices across the industry.

It features two key modules: the Accident Module, which facilitates near-time reporting and management of incidents, and the Safety Audit Module, which strengthens safety protocols.

Objective of the portal:

- To improve **Safety Management practices** within the coal industry
- **Monitor Actions:** Ensure coal companies act on recommendations from inquiries
- **Reduce Incidents:** Aim for a significant decrease in accidents and incidents
- **Enhance Accountability:** Foster responsibility among coal mining companies
- **Foster Safety Culture:** Promote a proactive culture of safety within the industry

The portal supports the Ministry of Coal's commitment to a "Culture of Mine Safety" by leveraging technology and risk assessment to enhance safety, productivity, and employee well-being in the coal mining sector.

14.1. Coal India Limited:

Safety is always the utmost priority of CIL. Safety is integral to the mission statement of CIL and is a key component of the overall business strategy. To uphold this commitment, CIL has established a comprehensive "Occupational Health & Safety Policy" aimed at ensuring safety and occupational health across all its mines and establishments. Each subsidiary of CIL is supported by a multidisciplinary Internal Safety Organisation (ISO) dedicated to implementing this policy effectively.

All operations, systems, and processes are systematically planned and executed with due emphasis on safety, conservation of resources, sustainable development, and environmental protection. Workplace hazards and the associated risks inherent in mining operations are proactively identified, and mine-specific Safety Management Plans are formulated and implemented for every mine.

CIL actively encourages employee participation in safety management, thereby fostering a strong and proactive safety culture and enhancing safety awareness across the workforce. Through these concerted efforts and sustained initiatives, CIL remains firmly committed to achieving its objective of Zero Harm Potential (ZHP) in all mining operations.

14.1.1. Statutory Framework for Coal Mine Safety:

Coal mining is a highly regulated industry worldwide due to its inherent operational and occupational hazards. In India, coal mine safety legislation is among the most comprehensive and extensive statutory frameworks designed to ensure occupational health and safety (OHS). Compliance with these safety statutes is mandatory. Key statutes governing coal mine safety include:

Sl. No.	Statute
1	The Occupational Safety, Health, and Working Conditions Code - 2020
2	The Mines Rules -1955
3	The Coal Mines Regulations -2017
4	The Mines Rescue Rules -1985
5	The Electricity Act- 2003
6	The Central Electricity Authority (Measures related to safety & supply) Reg. - 2023
7	The Mines Vocational Training Rules -1966
8	The Indian Explosive Act, 1884
9	The Explosive Rules - 2008
10	The Indian Boiler Act, 1923
11	The Workmen Compensation Act – 1923 (Principal Act amended as on date)

14.2 Occupational Health and Safety Policy of CIL:

We, at Coal India Limited, are committed to ensure the health and safety of our employees. CIL believes that accidents are preventable and industrial health hazards are controllable with foresight, relevant training, purposeful attitude and appropriate equipment.

CIL is committed to:

A. Carry out all mining and associated activities in such a manner as to avoid harm to employees, neighboring communities & environment.

B. Comply with all relevant statutes for occupational health and safety.

C. Continuously promote and improve safe practices in all its operations in a planned manner along with its monitoring and feedback.

D. Develop a culture of progressive improvement in practices and systems related to Occupational Health and Safety (OHS) at work places.

CIL will achieve these objectives by:

i. Planning and designing of mine with adequate provision for Occupational Health and Safety.

ii. Hazard Identification and Risk Assessment based Safety Management System in mines.

iii. Adoption of suitable technology for improvement in Occupational Health and Safety (OHS) system in work places.

iv. Provision of adequate resources for effective execution of Occupational Health and Safety (OHS) system in work places.

v. Engage the safety personnel exclusively for improving safety standards and safety cultures of mines.

vi. Organize appropriate forums with employees' representatives for joint consultations on occupational health and safety matters to promote motivation and commitment of employees in occupational health and safety system;

vii. Multi-level monitoring of the implementation of the Occupational Health and Safety (OHS) system in mines through Internal Safety Organisation (ISO) at the company headquarters and Area Safety Officers at area level;

viii. Periodically auditing of the procedures and practices related to Occupational Health and Safety (OHS) System;

ix. Institute continuous education, training and retraining all employees with the accent placed on development of safety oriented skills;

x. Continuous efforts to improve the occupational health standards, workplace ambience and health conditions of the employees.

To implement the Occupational Health & Safety Policy effectively, the following measures are ensured:

i. **Allocation of Adequate Funds:** Sufficient financial resources are earmarked to enhance and maintain mine safety.

ii. **Deployment of Skilled Workforce:** An adequate number of trained personnel is deployed to ensure the safe execution of mining operations.

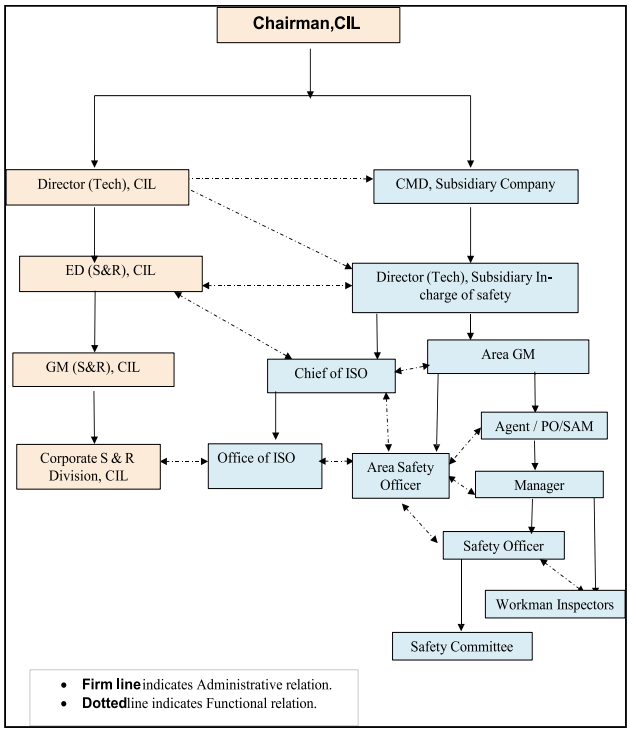
iii. **Establishment of Internal Safety Organisation (ISO):** A well-structured, multidisciplinary ISO is established to oversee and monitor the implementation of CIL's Safety Policy across all subsidiaries.

iv. **Technological Advancements:** Continuous improvement and adoption of advanced technologies to enhance the safety and efficiency of mining operations.

v. **Scientific Studies and R&Ds:** Leveraging in-house expertise from CMPDIL and collaborating with scientific agencies and technical institutions for robust design, planning, and research initiatives.

vi. **Employee Participation:** Ensuring workers' active involvement in all forums dedicated to monitoring and improving the mine safety.

14.3 Organisational Structure for Safety in Coal India Ltd:



14.4 Functions of Internal Safety Organisation (ISO) (Abridged):

CIL has established a structured multi-disciplinary Internal Safety Organisation (ISO) to assist the line management at various levels in matters related to mine safety. The major functions of ISO are as under:

- Functions of ISO is multi-disciplinary in nature.
- Functions of the ISO are both audit and advisory in nature.

- ISO examine mine plans and schemes of every mine at least once a year.
- Make one inspection in each mine at every three months.
- Dangerous conditions observed during inspection are rectified through line management.
- Review the safety performance:
  - Once in every quarter by the CMD.
  - At least once a month by the Director (Technical).
- All applications sought for permission for the opening/reopening of a district are independently checked by the ISO.

14.5 Major Activities for Corporate Safety & Rescue Division (ISO) of CIL:

a. **Mine Inspections:** Conduct regular inspections to evaluate safety conditions in mines and implement corrective actions to enhance standards.

b. **Accident Investigations:** Carry out preliminary inquiries into fatal accidents and major incidents/dangerous occurrences using Root Cause Analysis (RCA) techniques.

c. **Safety Database Management:** Maintain a comprehensive database of accidents and incidents for documentation, monitoring, and analysis.

d. **Accident Analysis:** Examine mine accident statistics to design and implement targeted safety improvement measures.

e. **Annual Mine Safety Audits:** Oversee annual safety audits to ensure compliance and drive continual improvement.

f. **Specialized Safety Training:** Provide expert training by SIMTARS-accredited trainers to executives, mine officials, and Safety Committee members at unit and area levels.

g. **Technical Guidelines & Circulars:** Develop Internal Technical Circulars, Management Guidelines, and Safety Advisories on critical safety issues, ensuring effective implementation.

h. **Monitoring R&D on Mine Safety:** Facilitate and monitor research and development projects focused on advancing mine safety practices.

i. **Organizing Safety Meetings:** Convene meetings of the CIL Safety Board and National Dust Prevention Committee (NDPC), ensuring timely implementation of recommendations.

j. **Training Programs:** Define the criteria for imparting mine safety training and conduct structured programs across subsidiaries through online and physical mode.

k. **Monitoring Rescue Preparedness:** Monitor readiness levels of mine rescue establishments to ensure swift and effective emergency response system.

l. **Assisting in organizing the meeting of the Standing Committee on safety in coal mines:** Actively engage in meetings of the Standing Committee on Safety in Coal Mines and implement its recommendations.

m. **Coordination with External Agencies:** Collaborate with external agencies and all Internal Safety Organisations (ISOs) of subsidiaries on mine safety matters.

n. **Monitoring CSIS Portal:** Manage and update the CIL Safety Information System (CSIS) to ensure accuracy and reliability.

o. **Framing reply of Parliamentary Queries & RTI:** Respond to parliamentary questions on mine safety, including those raised by Standing Committees on Steel & Coal, Labour & Employment, COPU, MOC, CA&G, VIPs, and under RTI-2005.

p. **Maintenance National Coal Mine Safety Report (NCMSR) Portal:** Serve as the

nodal agency for maintaining the National Coal Mine Accidents Reporting (NCMSR) Portal where accident statistics and safety audit reports are posted.

q. **Regulatory Liaison:** Engage with safety forums and regulatory agencies such as DGMS to strengthen mine safety standards.

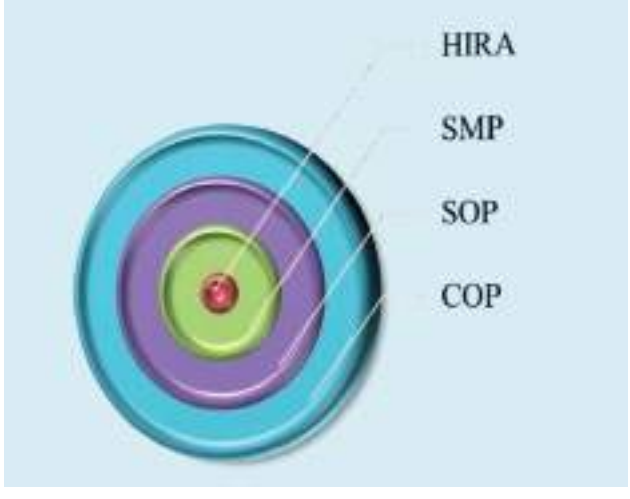
r. **Representing various sub-committees of BIS:** Represent CIL in BIS committees to contribute to the formulation of safety standards.

s. **Publication of Safety Bulletin:** Publish Safety Bulletins to disseminate knowledge, raise awareness, and promote a strong safety culture.

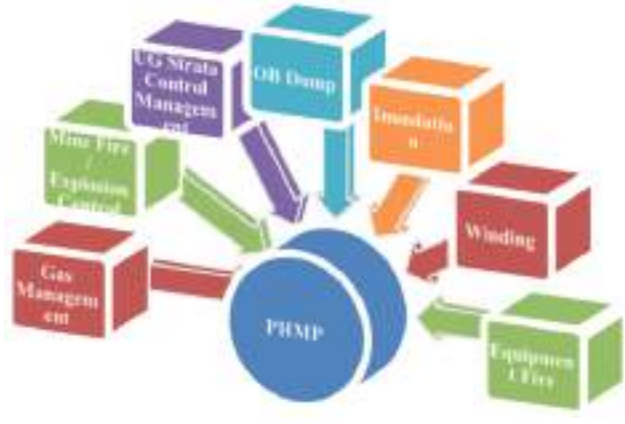
14.6 Measures for improvement Mine Safety Standard

In addition to compliance with statutory requirements and the continuation of ongoing safety initiatives, Coal India Limited (CIL) undertook several additional measures during the year 2025 to further enhance safety standards across its mines and subsidiaries, as outlined below:

i. **Review of Safety Management Plans (SMPs) –** Site-specific risk assessment based SMPs prepared for mines are reviewed. Implementation of SMPs is monitored through the Internal Safety Organisation (ISO) of each subsidiary.



ii. **Review of Principal Hazards Management Plans (PHMPs):** Principal Hazard Management Plans (PHMPs), formulated as an integral part of the Safety Management Plan (SMP) to prevent mine disasters and major mine accidents, are periodically reviewed and updated, and necessary corrective measures are incorporated. Trigger Action Response Plans (TARPs), developed to ensure effective management of emergency situations, are also regularly reviewed and revised to maintain their adequacy and effectiveness.



iii. **Up gradation of Standard Operating Procedures (SOPs):** Site-specific, Risk Assessment based Standard Operating Procedures (SOPs) for all Mining and Allied operations framed are reviewed and update as required to cater to the changing mine conditions and introduction of new machines and methodology.

iv. **Mine Safety Audit:** The Safety Audit of all producing mines of CIL for FY 2025–26 has commenced in line with the guidelines of the Ministry of Coal (MOC). The first phase of audits has been successfully completed in selected mines, while the subsequent phase covering all mines is currently in progress. Corrective actions have been implemented based on the findings and recommendations of the audit to ensure continual improvement in safety standards.

v. **Special Safety Drives on different Safety Issues:** Dedicated safety drives targeting key safety concerns, complemented by workshops, were conducted to elevate mine safety standards and cultivate greater awareness and sensitivity among all employees.

vi. **Pre-shift Safety Briefings & Toolbox Safety Talk:** Pre-shift safety briefings and Tool Box Safety talk before staring of any operation. Supervisors or experts related to the jobs give safety talk and informal risk management is done during the process.

vii. **Maintenance of National Coal Mines Safety Report (NCMSR) Portal:** The National Coal Mines Safety Report (NCMSR) Portal has been developed to facilitate the reporting of mine accidents through a dedicated Accident Module, enabling near real- time reporting for prompt response and comprehensive analysis. In addition, the Safety Audit Module streamlines and standardizes the audit process, thereby strengthening compliance with prescribed safety protocols and best practices across the coal mining sector. The integration of these advanced modules enhances the portal's effectiveness in addressing critical safety challenges and sets new benchmarks for proactive, transparent, and efficient safety management.

viii. **Lead Auditor Training:** Executives with requisite qualifications are being trained and certified as Lead Auditors at IIT-ISM, Dhanbad, for conducting safety audits based on ISO standards.

ix. **Personal Safety Counseling & Employee Assistant Program:** Employees are consulted by the mine officials to understand the ability of the employee in terms of safety attitude and understanding.

x. **Competency Assessment for Operators:** A competency board at mine has been established to evaluate the skills and qualifications of all operators. Regular assessments are conducted, with mandatory evaluations for new operators and those involved in incidents.

xi. **Safety Review Meetings:** Multiple meetings, chaired by the Director (Technical), CIL, were conducted to assess the safety status of mines and other establishments and to identify measures for enhancing safety.

xii. **Monsoon Preparation Plan:** Micro and macro level plan has been prepared for monsoon preparation and these are implemented and monitored regularly. The Monsoon period has passed without any major safety issues.

xiii. **Preparation and sharing of Video Clips or Animation films:** Video clips and animation films covering various mine safety procedures, operational dos and don'ts, and accident analyses are being developed for dissemination among all employees. These audio-visual materials are being extensively used during training programmes conducted at various Vocational Training Centres (VTCs) and other establishments. This initiative is expected to significantly enhance safety awareness among employees and foster a strong safety culture at the grassroots level.

xv. **Adoption of Star Rating of mines:** For encouraging the best practices in mines including safety practices, the Star Rating System has been adopted.

Apart from the above specific actions, the following measures are continued for improving safety standards:

I. Emphasis on adoption of the state-of-the art technology in suitable Geo-Mining Conditions:

a. **Mass Production Technology (MPT):** Expanding the deployment of Continuous Miners across a larger number of underground (UG) mines to enhance both productivity and operational safety.

b. **Surface Miners:** Increasing the use of Surface Miners in opencast projects (OCPs) to eliminate blasting operations, thereby ensuring safer and more environmentally sustainable mining practices.

c. **Higher-Capacity HEMM:** Deploying higher-capacity Heavy Earth Moving Machinery (HEMM) in additional opencast mines to improve operational efficiency and enhance safety standards.

d. **Highwall Mining Technology:** Introducing highwall mining technology for efficient and safe coal extraction in suitable geo-mining conditions.

e. **Man Riding Systems:** Implementing man riding systems in underground mines to facilitate safe, efficient, and comfortable transportation of personnel.

II. Adoption of the state-of-the art mechanism for Strata Management

a. **Strata Control and Management Plan:** Developing and implementing a scientifically-based Strata Control and Management Plan, including a Rock Mass Rating (RMR)-based strata support system.

b. **Mechanized Drilling:** Adopting mechanized drilling methods for roof bolting to enhance efficiency and safety.

c. **Resin Capsules:** Utilizing resin capsules in place of cement capsules where required, based on operational needs.

d. **Modern Monitoring Instruments:** Deploying advanced strata monitoring instruments as per operational requirements.

e. **Strata Control Cell:** Establishing a dedicated Strata Control Cell to monitor the effectiveness of the strata support system.

f. **Quality Training:** Providing comprehensive training programs for support crews, frontline mine officials, supervisors, and grassroots-level workers to ensure proficiency in strata management and support operations.

III. Mechanism for monitoring of Mine Environment:

a. Detection of mine gasses by Multi-gas detector, Methanometer, CO-detector etc.

b. Continuous monitoring of the mine environment by installing Environmental Tele- Monitoring System (ETMS) & Local Methane Detectors (LMD) etc.

c. Regular Mine Air Sampling and Analysis by using Gas Chromatograph.

d. Personal Dust Sampler (PDS) for detecting dust concentration.

e. Use of Continuous Ambient Air Quality Monitoring System (CAAQMS) in large OCPs to assess the ambient dust concentration.

IV. Strengthening Water Danger Management:

a. Preparation and maintenance of seam-wise Water Danger Plan.

b. Preparation and implementation of Monsoon Action Plan.

c. Adequate Pumping Facilities with adequate capacity of Sumps.

d. Liaison with the State Meteorological Dept. & Dam Authorities.

e. Construction of Embankments against water bodies.

f. Inter-mine joint survey between adjoining mines to prove inter-mine barriers.

g. Conducting Check Survey & Joint Survey to eliminate errors in mine survey.

V. Steps for prevention accidents in OCPs:

a. Formulation and Implementation of Mine-specific Traffic Rules.

b. Code of Practice for HEMM Operators, Maintenance staff & others.

c. Sensitization training of Contractor's Workmen involved in contractual jobs.

d. Training Simulator to impart simulation training to Dumper, Dragline, Shovel and Dozer Operators to hone operational skills.

e. Adequate Lighting arrangements are provided for enhancement of standard of illumination.

f. Eco-friendly Surface Miners for blast free extraction of coal and vertical ripper for extraction of OB and avoidance of associated risks.

g. Dumpers fitted with Proximity Warning Devices, Rear view mirrors and 3600 view camera, Audio-Visual Alarm (AVA), Automatic Fire Detection & Suppression System (AFDSS), Anti-Collision Device etc. Ergonomically designed seats & AC Cabins for operators' comfort.

h. Total Station, 3D laser Scanner, Time Deflection Reflectometry & Slope Stability Radar for monitoring OB bench and OB Dump stability.

i. Separate road for light motor vehicle (LMV), Safety flags for LMV, Cautions/ Danger Board, road dividers etc.

j. **GPS-Based Operator Independent Truck Dispatch System (OITDS):** Deployed in large opencast projects (OCPs) to track and optimize the movement of Heavy Earth Moving Machinery (HEMM) within the mines. Additionally, e-surveillance units equipped with GPS/GPRS-based vehicle tracking and geo-fencing systems have been installed, enabling real-time, 24x7 monitoring of mining operations.

k. **Integrated Command and Control Centre for e-Surveillance:** The Integrated Command & Control Centre (ICCC) is a centralized digital platform being deployed across Coal India Limited (CIL) subsidiaries to enhance mine surveillance, safety, logistics transparency, theft prevention, environmental compliance, and operational efficiency.

ICCC integrates:

- CCTV & AI Video Analytics
- RFID-based access control
- GPS/Vehicle Tracking Systems (VTS)
- ANPR at weighbridges
- Drone surveillance inputs

- IoT sensors (AQMS, fire/smoke detection)
- Smart township modules
- Cloud-based alerting & reporting dashboards

The system enables real-time decision-making, supports CISF/QRTs for rapid field action, and strengthens accountability and transparency across mining operations.

I. Artificial Intelligent (AI) enabled Boom Barrier & Traffic Control System in OC mines.

VI. Electrical Safety: For enhancing safety during use, repairing and maintenance:

a. LOTO based shut-down procedures.

b. Hydraulic ladders are being used

c. Non-contact type live conductor device

d. Engaged skilled and trained electricians and supervisors.

VII. Steps for control of dust in mines: Following are provided:

Mobile water sprinkler tanker

Fog Cannon

Fixed type Mist sprinkler

Road Sweeping Machine

Vertical Greenery/ Wind Barrier

Wheel washing system

Mechanical Sweeper M/C

Continuous Ambient Air Quality Measurement System (CAAQMS)

VIII. Training on Mine Safety:

a. Initial and Refresher training & On-the-Job Training as per statute.

b. Training on Simulators to HEMM operators.

c. Skill up-gradation of frontline mine officials on continual basis on various topics.

d. Sensitization of all employees including Members of Safety Committees and contractual workmen on a regular basis.

e. Experienced electrical supervisors of the Area are being engaged for imparting training to electricians and electrical helpers in VTCs.

f. Domain knowledge of experienced Agent, Mine Managers, E&M & Excavation Engineers and other senior level executives are being used in imparting training to enhance the quality of training.

g. Virtual Reality (VR)Training module has been introduced

IX. Other steps for enhancing Safety awareness:

a. Publicity propaganda / Safety campaign through involving family members.

b. Display of safety information in fluorescence sign board / warning board.

c. Distribution of Safety pamphlets in workers.

d. SOPs distribution and Pre-shift Safety Talk to workers.

X. Mine Safety Inspection:

a. Round-the-clock Supervision of all mining operations by adequate number of competent & statutory Supervisors and mine Officials.

b. Regular Inspection by Workmen Inspectors appointed in each mine.

c. Surprise back shift mine Inspections by mine and area level officials.

d. Regular mine Inspection by officials of the Internal Safety Organisation of respective subsidiaries and CIL.

e. Periodic mine Inspections by senior officials of CIL & Subsidiaries, Trade union representatives and officials of MOC.

14.7 Mine Emergency Response System:

- Emergency Response and Evacuation Plan prepared as per statute for each mine.
- Mock Rehearsals for examining the efficacy of Emergency Action Plan. Sometimes NDRF and SDRF are also participated in mock rehearsals.
- Demarcating Emergency Escape Routes in belowground.
- Check list prepared for dealing with an emergency in mine.
- Flow Chart prepared for transmission of information.

Services for Emergency Response System in CIL Rescue:

- CIL is maintaining a well establishment Rescue Organisation comprising of 6 Mine Rescue Stations (MRS), 12 Rescue Rooms-with-Refresher Training facilities (RRRT) and 12 Rescue Rooms (RR).

- All Rescue Stations / Rescue Rooms are fully equipped with adequate numbers of rescue apparatus and staffed by adequate numbers of Rescue Trained Personnel (RTP) as per the MRR-1985.
- All RTP are being periodically re-trained to conduct rescue operations in hot, humid and irrespirable atmospheres in modern training galleries as well as in mines.
- CIL employs Permanent Brigade Members and RTPs for 24x7 on call. The Mine Rescue Station and Rescue Rooms are established at strategic locations.
- The details are as under:

Company	Rescue establishment presently operating		
	Mine Rescue Station (MRS)	Rescue room with Refreshers Training (RRRT)	Rescue Room (RR)
ECL	Sitarampur	Kenda	Jhanjra , Mugma
BCCL	Dhansar		Moonidih, Madhuband,
CCL	Ramgarh	Kathara & Churi	
SECL	Manindragarh	Sohagpur, Kusmunda, Johilla, Bisrampur, Baikunthpur	Chirimiri, Raigarh, Bhatgaon, Jamuna & Kotma, Korba
WCL	Nagpur	Parasia, Pathakhera,Tadali	Mathani, Majri, Sasti
MCL	Brajraj Nagar	Talcher	
Total	**6**	**12**	**12**

14.8 First Aid Competition:

Teams from all subsidiaries with all women teams, participated in the First Aid Competition, showcasing their skills and commitment to workplace safety. Their active involvement emphasized the growing role of women in emergency preparedness and response.

14.9 Safety Monitoring of CIL: Safety in mines are being monitored at various levels by the following agencies:

(CIL- at Corporate level),
1. Board of Director meeting.
2. Risk Management Committee
3. CIL Safety Board
4. CMDs meeting
5. S&R Division, CIL

(at Subsidiary HQ level),
1. Tri-partite Safety Committee
2. Internal Safety Organisation (ISO)

(at Area level)
1. Tri-partite Safety Committee
2. Area Safety Officer (ASO)

(at Mine level)
1. Workman Inspectors (Mining Mechanical/ Electrical)
2. Safety Committee
3. Safety Officer
4. Other Competent Mine Officials

14.10 Accident Statistics: A Key Indicator of Mine Safety

Accident statistics serve as a critical indicator of safety performance in mines. Over the years, Coal India Limited (CIL) has achieved significant improvements in mine safety, as reflected in a substantial reduction in accidents. This sustained progress can be attributed to the following key factors:

- **Shared Commitment and Collaboration:** A unified approach and coordinated efforts among all stakeholders at every level.
- **Adoption of Advanced Technologies and Systems:** Leveraging modern equipment, monitoring tools, and safety management systems to enhance operational safety.
- **Persistent Vigilance and Effective Supervision:** Continuous monitoring, timely interventions, and proactive oversight by management and supervisory personnel.
- **Continuous Skill Development and Safety Awareness:** Ongoing training initiatives aimed at enhancing workforce competence, safety awareness, and risk perception.

Salient features of continuous and sustained improvement in CIL's safety performance:

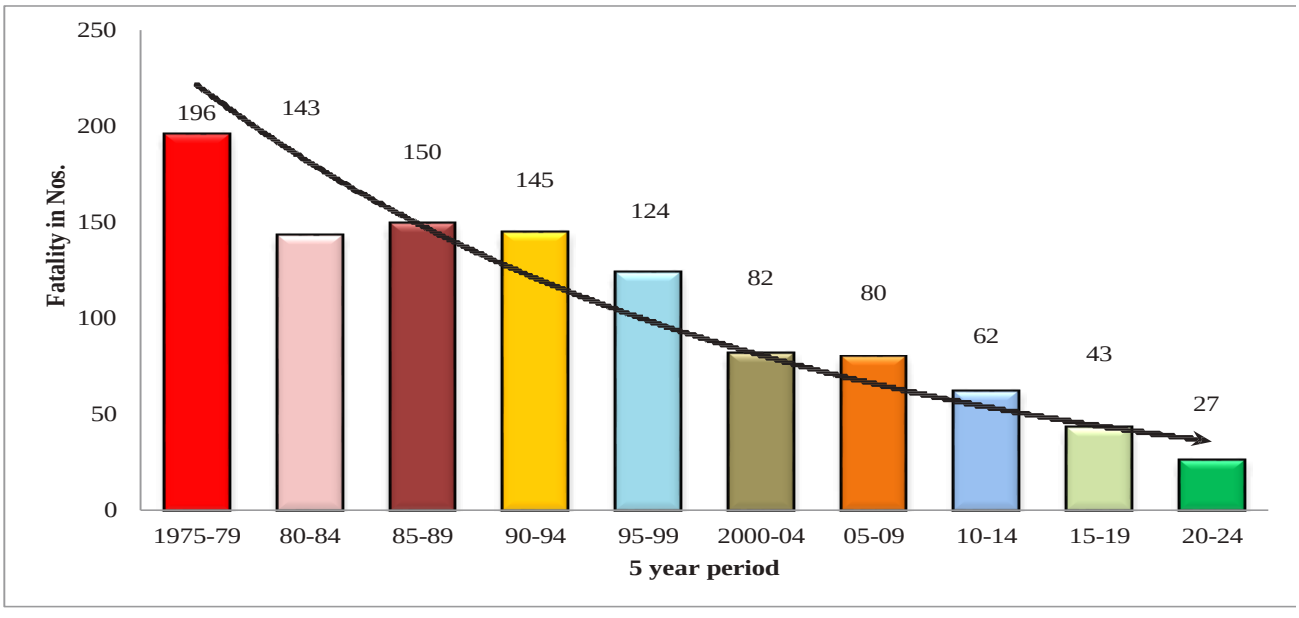
Table: 1 - Comparative Accidents Statistics of CIL of 5 Yearly Average since 1975

Time frame	Av. Fatal Accidents		Av. Serious Accidents		Av. Fatality Rate		Av. Serious Injury Rate	
	FA	FTY	SA	SI	Per Mill. Te	Per 3 Lac Manshifts	Per Mill. Te	Per Mill. Te
1975-79	157	196	1224	1278	2.18	0.44	14.24	2.89
1980-84	122	143	1018	1065	1.29	0.30	9.75	2.26
1985-89	133	150	550	571	0.98	0.30	3.70	1.15
1990-94	120	145	525	558	0.694	0.30	2.70	1.19
1995-99	98	124	481	513	0.50	0.29	2.06	1.14
2000-04	68	82	499	526	0.28	0.22	1.80	1.47
2005-09	60	80	328	339	0.22	0.25	0.92	1.04
2010-14	56	62	219	228	0.138	0.23	0.49	0.80

Time frame	Av. Fatal Accidents		Av. Serious Accidents		Av. Fatality Rate		Av. Serious Injury Rate	
	FA	FTY	SA	SI	Per Mill. Te	Per 3 Lac Manshifts	Per Mill. Te	Per Mill. Te
2015-19	33	43	107	112	0.08	0.18	0.19	0.47
2020-24	24	27	51	58	0.04	0.12	0.09	0.26

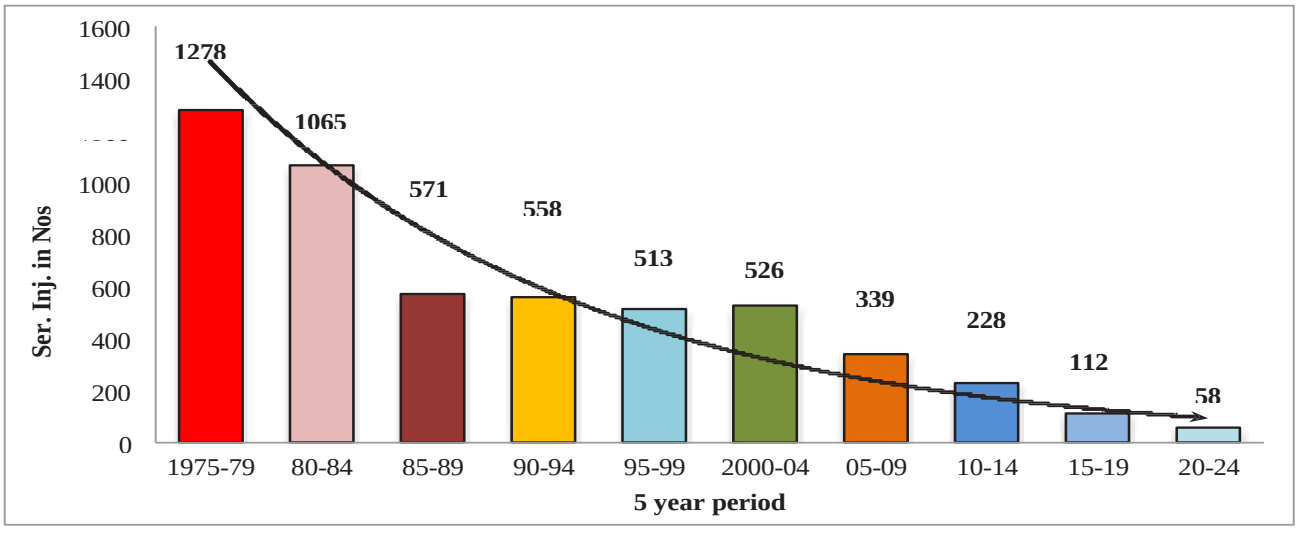
Note: Subject to reconciliation with DGMS & Accident Statistics are maintained calendar year-wise in conformity with DGMS practice

Graph -1 Trend of 5 Yearly Average Fatalities in CIL since 1975



Note: Accident Statistics are maintained calendar year wise in conformity with DGMS practice & figures subject to reconciliation with DGMS

Graph: 2 Trend of 5 Yearly Average of Serious Injuries since 1975



Note: Accident Statistics are maintained calendar year wise in conformity with DGMS practice & figures subject to reconciliation with DGMS

Table – 2: Overall Accident Statistics in 2025 (up to November) vis-a-vis 2024 in CIL

SN	Parameters	2025	2024
1	Number of fatal accidents	25	22
2	Number of fatalities	32	25
3	Number of serious Accidents	26	31
4	Number of serious injuries	29	37
5	Fatality Rate per Mte. of coal production	0.05	0.03
6	Fatality Rate per 3 lakh man-shift deployed	0.19	0.13
7	Serious injury Rate per Mte. of coal production	0.04	0.05
8	Serious injury Rate per 3 lakh man-shift deployed	0.17	0.19

Note: Accident Statistics are maintained calendar year wise in conformity with DGMS practice & figures subject to reconciliation with DGMS.

Table -3: Company-wise Accident Statistics of CIL for the year 2025 (Upto November)

Company	Fatal Accidents	Fatalities	Serious Accidents	Serious Injuries	Fatality Rate		Serious Injury Rate	
					Per Mill. Te	Per 3 lac manshifts	Per Mill. Te	Per 3 lac manshifts
ECL	2	2	3	3	0.04	0.06	0.07	0.09
BCCL	4	9	0	0	0.27	0.51	0.00	0.00
CCL	6	6	4	6	0.08	0.36	0.08	0.36
NCL	4	4	5	5	0.03	0.17	0.04	0.21
WCL	1	3	9	9	0.05	0.13	0.16	0.40
SECL	6	6	4	5	0.04	0.25	0.03	0.21
MCL	2	2	1	1	0.10	0.07	0.01	0.04
NEC	0	0	0	0	0.00	0.00	0.00	0.00
CIL	25	32	26	29	0.05	0.19	0.04	0.17

Note: Accident Statistics are maintained calendar year wise in conformity with DGMS practice & figures subject to reconciliation with DGMS

Table - 4: Company-wise Accident Statistics from 2022 to 2025 (Upto November)

Comp.	Fatal Accidents				Fatalities				Serious Accidents				Serious injuries			
	22	23	24	25	22	23	24	25	22	23	24	25	22	23	24	25
ECL	2	4	3	2	2	4	4	2	9	3	3	3	9	6	3	3
BCCL	4	5	0	4	5	6	0	9	2	4	3	0	3	4	4	0
CCL	2	4	3	6	2	4	3	6	3	0	1	4	3	0	1	6
NCL	1	2	5	4	1	2	6	4	8	12	4	5	8	16	9	5
WCL	1	2	1	1	2	2	1	3	10	3	5	9	12	3	5	9
SECL	8	3	7	6	8	3	8	6	25	11	14	4	26	12	14	5

Comp.	Fatal Accidents				Fatalities				Serious Accidents				Serious injuries			
	22	23	24	25	22	23	24	25	22	23	24	25	22	23	24	25
MCL	0	6	3	2	0	8	3	2	4	1	1	1	4	4	1	1
NEC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CIL	18	26	22	25	20	29	25	32	61	34	31	26	65	45	37	29

Table – 5: Company-wise Fatality & Serious Injury Rate during period 2022 to 2025 (Upto Nov)

Company	Fatality Rate Per MT of coal production				Fatality Rate Per 3 lac man shifts				Serious Injury Rate Per MT of coal production				Serious Injury per Rate 3 lac man shifts			
	22	23	24	25	22	23	24	25	22	23	24	25	22	23	24	25
ECL	0.06	0.10	0.08	0.04	0.05	0.10	0.10	0.06	0.26	0.15	0.06	0.07	0.22	0.15	0.08	0.09
BCCL	0.14	0.15	0.00	0.27	0.18	0.24	0.00	0.51	0.08	0.10	0.10	0.00	0.10	0.16	0.19	0.00
CCL	0.03	0.05	0.03	0.08	0.08	0.17	0.13	0.36	0.04	0.00	0.01	0.08	0.12	0.00	0.04	0.36
NCL	0.01	0.02	0.04	0.03	0.04	0.08	0.23	0.17	0.06	0.12	0.07	0.04	0.34	0.67	0.35	0.21
WCL	0.03	0.03	0.01	0.05	0.03	0.04	0.04	0.13	0.19	0.04	0.07	0.16	0.18	0.06	0.20	0.40
SECL	0.05	0.02	0.05	0.04	0.25	0.10	0.28	0.25	0.17	0.07	0.08	0.03	0.80	0.41	0.48	0.21
MCL	0.00	0.04	0.01	0.10	0.00	0.25	0.09	0.07	0.02	0.02	0.01	0.01	0.13	0.12	0.03	0.04
NEC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CIL	**0.03**	**0.04**	**0.03**	**0.05**	**0.08**	**0.13**	**0.13**	**0.19**	**0.09**	**0.06**	**0.05**	**0.04**	**0.26**	**0.21**	**0.19**	**0.17**

Note: Accident Statistics are maintained calendar year wise in conformity with DGMS practice & figures subject to reconciliation with DGMS

Table – 6: Other type of Accidents / Incidents in mines of CIL

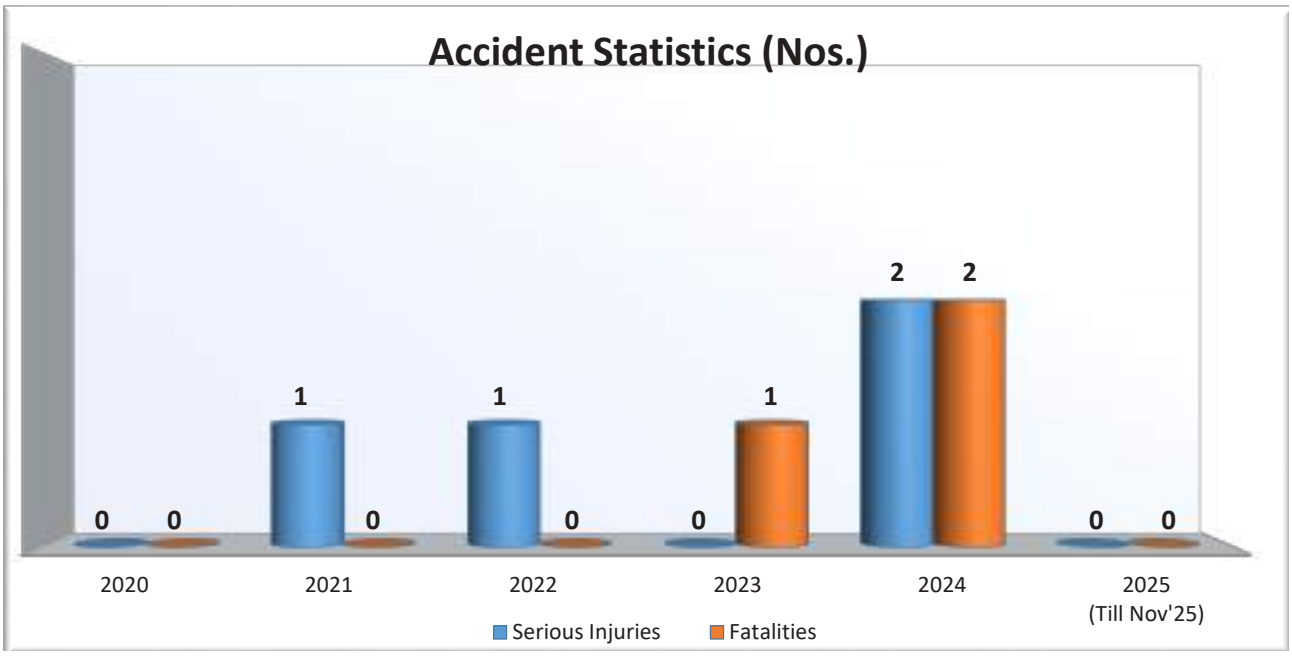
SN	Other Incidents	2025 (Upto Nov)	2024
1	Reportable Injury	15	46
2	Minor Injury	3	4
3	Near Miss incidence	185	72
4	Dangerous Occurrence	18	28

Note: Accident Statistics are maintained calendar year wise in conformity with DGMS practice & figures subject to reconciliation with DGMS

14.11 NLCIL

Accident Statistics of NLCIL MINES - (for last five years):

Year	Fatalities	Serious Injuries
2020	--	--
2021	--	1
2022	--	1
2023	1	--
2024	2	2
2025 (Till Nov'25)	--	--



I. Safety measures at NLCIL

The following safety measures are being adopted in NLCIL to achieve Zero Accident Potential:

- Blast free lignite mining system using bucket wheel excavator with belt conveyor and spreader is being used in all Neyveli mines. Blast free mining is also being practiced in Barsingsar mines for both OB and Lignite through Conventional Mining Equipment. At Talabira Mines, blast free mining is done in case of extraction of coal by the use of Surface miner.
- Every HEMM deployed in the Mines has been fitted with AFDSS (Automatic Fire Detection and Suppression System)
- Sufficient Fire Extinguishers have been provided at strategic locations in workshops, offices, SME, Conveyor Drive heads, etc. and regularly checked and updated.
- Fire tenders of Sufficient capacity available at all the Mines.
- **Formulation of SMP:** As per Regulation 104 of Coal Mines Regulations 2017, Safety Management Plan(SMP) for all 05(five) NLCIL Mines have been prepared based on Hazard identification and Risk assessment and put into implementation. This is reviewed in every 6 months.

Formulation and Implementation of SOPs: SOPs forms part of SMP and have been prepared for all activities of the mine and has been put into practice. No. of SOPs Available for O&M works:

  - Mine-I: 339
  - Mine-IA: 348
  - Mine-II: 387
  - BLMP: 79
  - Talabira II & III OCP: 65
- System of appointment of workers in the mine: Prior to be employed in the mine, all persons including those by the contractors were provided with IME at the Hospital run by M/s NLC India Ltd by duly qualified medical officers. Similarly, all such persons were subjected to Periodical Medical Examinations once in every 3 years. The medical officers were also trained on ILO classification of chest x-rays to detect early onset of dust related diseases in the lungs.
- Prior to be employed in the mine, all persons including those engaged by the

contractors were provided with the Basic Vocational Training in the Group Vocational Training Center in accordance with Rule 6 of the Mines Vocational Training Rules, 1966.

- For the purpose of gaining entry into the mine by any person after a valid IME/PME certification and valid Initial/Refresher Training, it was ensured that the person was issued a valid entry pass by the Manager after satisfactory verification of all documentation. Such entry passes were checked every working shift at the only entrance at the mine by the CISF personnel engaged for the purpose.
- Women employment in the mine: Separate SOPs were formulated regarding the matter
- Appointment of Statutory Manpower: maintained as per regulations
- Scientific study conducted under regulation 106(2) of CMR, 2017: Scientific Study for Slope Stability conducted in all the mines and the recommendations have been implemented.
- Conduct of Safety Audit in Mines: Internal Safety Audit of Mines conducted by Corporate Safety once in every year.
- Safety Auditors' Training arranged through Anna University for Executives of NLCIL for conducting Safety and Health Management System Audit in Coal and Lignite Mines as per MoC guidelines.
- Safety and Health Management System Audit has been conducted in all mines of NLCIL.
- Pit Safety Committee meetings conducted monthly besides special meetings.
- Water danger potentials are studied and well managed by a separate department called ground water control division.
- Mobile Safety App- NLCIL Aran launched for reporting od unsafe observations, near misses for needful compliance.
- Ensuring of all the Safety devices in the Equipment and HEMM Deployed in Mines: Complied as per DGMS (Tech.) Circular 06 of 2020.
- Respirable dust monitoring, free silica assessment under regulation 143(14) of CMR, 2017 read with GSR 978(E) of 01/10/2018.
- Banning of mobile phone in mines working area and usage of Walkie-Talkies for communication inside mines.
- 30 Water sprinklers and 6 Fog cannons are being deployed in NLCIL Mines to suppress dust. Besides this, respirable dust monitoring conducted in all the Mines of NLCIL for free silica assessment under regulation 143(14) of CMR, 2017 read with GSR 978(E) of 01/10/2018.
- Ambient air Quality Monitoring System has also been provided in NLCIL Mines for continuous Monitoring of Air Quality in Mines.
- Crisis Management Plan: Prepared for all the mines.
- Mine illumination levels maintained as per regulation 178 of CMR, 2017 read with GSR 981(E) of 01/10/2018.
- Noise survey conducted as per DGMS (Tech)(S&T) Circular No.1 of 2011.
- Supply, issue and use of PPEs under regulation 241 & 242 of CMR, 2017 has been ensured.
- Banning of Mobile Phones in Mines Working area and more usage of Walkie-Talkies for two way communication inside mines.
- Provision of facilitations onsite in respect of rest shelters, drinking water and first-aid.

II. Emergency response System

a) Principal Hazards have been identified as a part of Safety Management plan in all the NLCIL mines and Emergency Action Plan is in place. There is also detailed Monsoon Action Plan which comes into force as soon as any weather warning is received by Mine officials from Meteorological department with regard to high wind velocities and heavy rainfall.

b) In order to enhance the emergency response of system and personnel, mock drills are conducted every month at different locations, different divisions and in different scenarios.

c) List of First Aid trained persons are displayed in all divisions along with their contact numbers to contact them in times of need. Emergency numbers are displayed in all prominent locations.

III. Safety Trainings

Training given at GVTC, Neyveli for the period January 2025 to November 2025

GVTC-No of persons Trained During the Calendar Year 2025 (Jan 2025 to Nov 2025)			
S.No.	Type of training		Persons trained
1	Basic/Initial training imparted to employees		05
2	Basic/Initial training imparted to contract workers		2,768
3	Basic/Initial training imparted to Apprenticeship Trainees		165
4	Refresher Training	Contract workers	1,535
		Regular Employees	900
5	Special Training	Contract workers	492
		Regular Employees	419
6	Other Training (Executives, Supervisors, Graduate & Diploma Apprentices and CISF etc)		1,341
Total no. of persons trained			**7,625**

IV. Occupational Health services

In the mines of NLC India Limited, the following actions have been taken with regard to OH services:

a) Health facilities are being provided to all mine workers including contract workmen. One number of 355 bed multi-functional general hospital is functioning at Neyveli and one Occupational Health Centre is operational at Barsingsar Mine, Rajasthan.

b) For all the workmen at NLCIL Mines, including contract workmen, Periodical medical examination is conducted once in 3 years at Industrial Medical Centre dedicated for this purpose at NLC India Hospital. Based on the result of PME necessary action is taken.

c) Each mine is provided with BLS (Basic life support) Ambulance for speedy evacuation of injured or sick person to the hospital for better medical treatment.

d) Noise and illumination surveys are regularly conducted and necessary actions are taken based on the result of measurement.

e) Occupational health and safety workshops are regularly conducted to impart health awareness among mine workers.

Type of Medical Examination	Number of persons Jan 2025 to Nov 2025 (Actual)
Initial Medical Examination (IME)	1,811
Periodical Medical Examination (PME)	2,606

f) First Aid Training from January 2025 to November 2025

[Established as per provisions laid down under the Gazette Notification No.G.S.R. 529 (E), dated 4th August 2021, and approved by DGMS, vide No.DGMS/ OH(HQ)/First Aid/01/2025/155, Dhanbad dated 18th April 2022.

Year	Internal	External	Total
Jan 2025 to Nov 2025	238	43	281

V. Safety Monitoring at NLCIL:

A. Safety Monitoring at Mine Level:

a) Apart from monitoring the Safety status of NLCIL mines by the statutory bodies like DGMS, the mines are being monitored round the clock by the Mining Sirdars, Overman, Second class and First class Assistant managers in all the three shifts and Regular inspections by Safety Officer and Manager of the mine.

b) Monthly Pit Safety committee inspections are conducted and the observations are complied.

c) Mock rehearsals are conducted to create awareness on safety.

d) Inspections by Workmen Inspectors (Mining, Mechanical and Electrical) are regularly made and the observations are complied.

e) Division wise Safety audits are conducted at mines level at regular intervals.

B. Safety Monitoring at Corporate Level:

a) Regular Inspections of the mines are being done by the Multidisciplinary Corporate Safety Team.

b) Monthly Safety Officers meeting is conducted to discuss the safety status of NLCIL mines by the Corporate Safety team.

c) Internal Safety Audit of the mine is done once in a year by the Multidisciplinary Corporate Safety team.

d) Accidents/Near miss accidents are investigated and internal circulars are being issued to create awareness on safety to avoid such accidents in future.

e) Regular Inspections by Corporate council members are conducted and the observations are complied.

f) Bipartite and Tripartite Safety meetings are conducted with DGMS officials, Trade union representatives and the Top management and the observations are complied.

g) Annual Safety Week Inspection of mines is conducted by teams from other mines in Tamil Nadu in consultation with the DGMS and Tamil Nadu Mines Safety Association to create awareness on Safety among the workforce in NLCIL.

The Singareni Collieries Company Limited

- SCCL has a planned and systematic approach to implement the safety policy of the organisation through an effective safety management system. SCCL has prepared Safety Management Plans (SMPs) for 21 underground mines and 17 Open cast mines along with ancillary departments and regular review of these plans is being conducted to improve the work place safety.
- SCCL aims -
  - To minimize risks, based on Risk Assessment methods to determine

priorities and set objectives for eliminating hazards and reducing risks.

- To bring greater awareness of safety among the employees
- For reduced absenteeism
- To motivate all the employees for putting best efforts to achieve zero harm mining.

Accident Statistics of SCCL :

Details of fatal and serious accidents and rate of fatality and serious injury during 2024 to 2025is given in the table below (up to 30th Nov' 2025):

Company/Subsidiaries	2025		2024		Change in Fatality
	Fatal Accidents	Fatality	Fatal Accidents	Fatality	
SCCL	3	3	6	7	- 4

Company/Subsidiaries	2025		2024		Change in Serious Injuries
	Serious Accidents	Serious Injuries	Serious Accidents	Serious Injuries	
SCCL	70	71	88	88	-17

SAFETY MEASURES IN SCCL :

Initiatives being undertaken to modernize and improve safety in underground mining operations in SCCL are as below:

Sensors: Smart sensors are deployed for real-time monitoring of environmental conditions. Tube bundle system of gas monitoring is being used in ALP mine to monitor the gases like CO,CO2,CH4,O2 and Tele monitoring system is being established in PVK 5 mine.Alerts are automatically sent if unsafe conditions arise.

Communication Systems: Eeffective communication system is provided right up to the face in underground mines to facilitate rapid emergency responses.

Miner Tracking Technology: Electronic Miner Tracking system is under proposal to locate and detect the trapped persons.

Structured Safety Management: All mines are prepared and implementing site-specific Risk Assessment based Safety Management Plans (SMPs) and Standard Operating Procedures (SOPs) which are reinforced through regular inspections, audits and awareness campaigns such as «Safety is My Responsibility» to achieve "Zero Harm Potential".

Digital Learning Platforms: 10 No. of Modern/ Advanced VTCs are being imparted E-learning solutions and mobile applications are replaced traditional paper-based manuals and ensuring continuous and accessible safety training for all employees including contractual employees.

Inspections and Audits: Regular internal and external safety inspections and audits are being conducted to ensure compliance with statutory safety regulations and identify potential risks to improve safety

Other safety initiations:

- Mechanization & Semi mechanization has been introduced in UG mines replacing manual loading.
- For supporting freshly exposed Roof Pneumatic roof bolters are being used.
- Resin capsules being used for effective roof control.
- 31 chairlift, 8 chair car and 2 man winding systems are in use in 21 underground mines for ease of reaching the employees to workplace.
- Where ever geology permits, Continuous Miner technology is adopted (PVK, KPUG, GDK 11, SK mine and VKP mine)

- Air chilling plant has been working continually to improve underground environment near Long wall face in Adriyala.
- CO2 flushing facility is provided to deal with the fire emergencies at PVK & ALP mines.
- Bulk Nitrogen facility is provided for continuous N2 gas flushing in to the goaf of LW panels of ALP mine for proper inertisation of goaf atmosphere.

The following audits were conducted in SCCL to monitor the safety compliance for the FY 2025-26:

S.NO	SUBJECT
1	Safety audit on working faces, dump yards and haul roads in opencast mines
2	Conducting region wise (three regions) one day workshop for Workmen's Inspectors on Safety awareness under the aegis of DGMS
3	Safety audit on Fall of persons/objects and extremity caught.
4	Conducted ISO Safety review meeting with All Regional GMs , ASOs, Mine Safety officers and Electrical Safety Officers - VC
5	Pre-monsoon audit.
6	Safety Awareness program on "Review of Compliance of Statutory Provisions on Strata Management in underground coal mines" by O/o DGMS, Region – II, SCZ.
7	National Seminar on Safety challenges in Bulk handling equipments in mines under the aegis of DGMS at Bangalore.
8	Safety audit on Movement of Light motor vehicles HEMM & (LMVs)/MUV and other vehicles for conveyance of employees in OC mines.
9	Conducted ISO Safety review meeting with All Regional GMs, ASOs, all Mine Safety officers and Electrical Safety Officers and ISO Officers of Corporate – VC
10	Special Safety drive for prevention of Fatal/Serious accidents in the prone month of June, 2025
	Safety Audit on Contract work activities in UG and OC Mines
11	Conducted interactive session on Safety with DGMS officials and GMs, Agents, Managers, deptl. HoDs of KGM Region at Yellandu Club, Corp.
12	Safety audit on haulage road ways Including haulers and ropes, endless rope with pulleys in UG Mines.
	Conducting ISO Safety review meeting with All Regional GMs, ASOs, Area E&M Engineers, Mine Safety officers and Electrical Safety Officers – VC
13	Conducted Area level Tripartite Safety Review Meetings in consultation with DGMS authorities. Conducted Company level Tripartite Safety Review Meeting with, SCCL officers, Union representatives and DGMS officials Conducted Annual Safety Fortnight Prize distribution function (31stAugust, 2025).
14	Safety Audit on Handling use of explosives and Blasting practices in UG/ OC Mines, Magazines, explosive vans and records
15	Conducted Zonal Mines Rescue Competitions at RAMAGUNDAM. Audit on Electricals systems and electrical equipment in UG/OC mines and depts.
16	Audit on Coal Handling Plants.
17	Safety audit on Man riding systems.
18	• To conduct Conveners meeting as a part of Annual Safety Fortnight with GM (Safety) regions, ASOs and Conveners of inspection teams on modalities.

19	Observing 56th Annual Safety Fortnight – 2024
	• Safety and Health of employees - Suggestions meeting with representatives of Trade Union leaders, GM (Safety) of regions and Corp. HoDs concerned. • Conducting ISO Safety review meeting with All Regional GMs, ASOs, Area E&M Engineers, Mine Safety officers and Electrical Safety Officers.

Rescue Services in SCCL:

- SCCL is maintaining four rescue stations/ rooms on par with those in developed countries meeting International Standards to deal with rescue and recovery operations during emergencies.
- Apart from the basic rescue equipment required as per the statute, SCCL has procured state of the art Hydraulic Rescue Tools consisting of Hydraulic Cutters, Spreaders, Combi - Tools, Rescue Rams and Lifting Jacks. Pneumatic High Pressure Lifting bags, Concrete Cutters and Wood Cutters to deal with various types of disasters.
- SCCL has become the first privileged member of International Mines Rescue Board (IMRB) from India.
- SCCL has also witnessed encouraging participation of women in safety and emergency preparedness. Twenty-three women employees have volunteered to join the Mines Rescue Teams. Notably, an all-women rescue team comprising eight members represented SCCL at the All India Mines Rescue Competition (AIMRC) held in December 2025, where they achieved an impressive overall second place. This accomplishment underscores the capability, dedication, and professionalism of women employees in demanding and high-risk mining environments.