

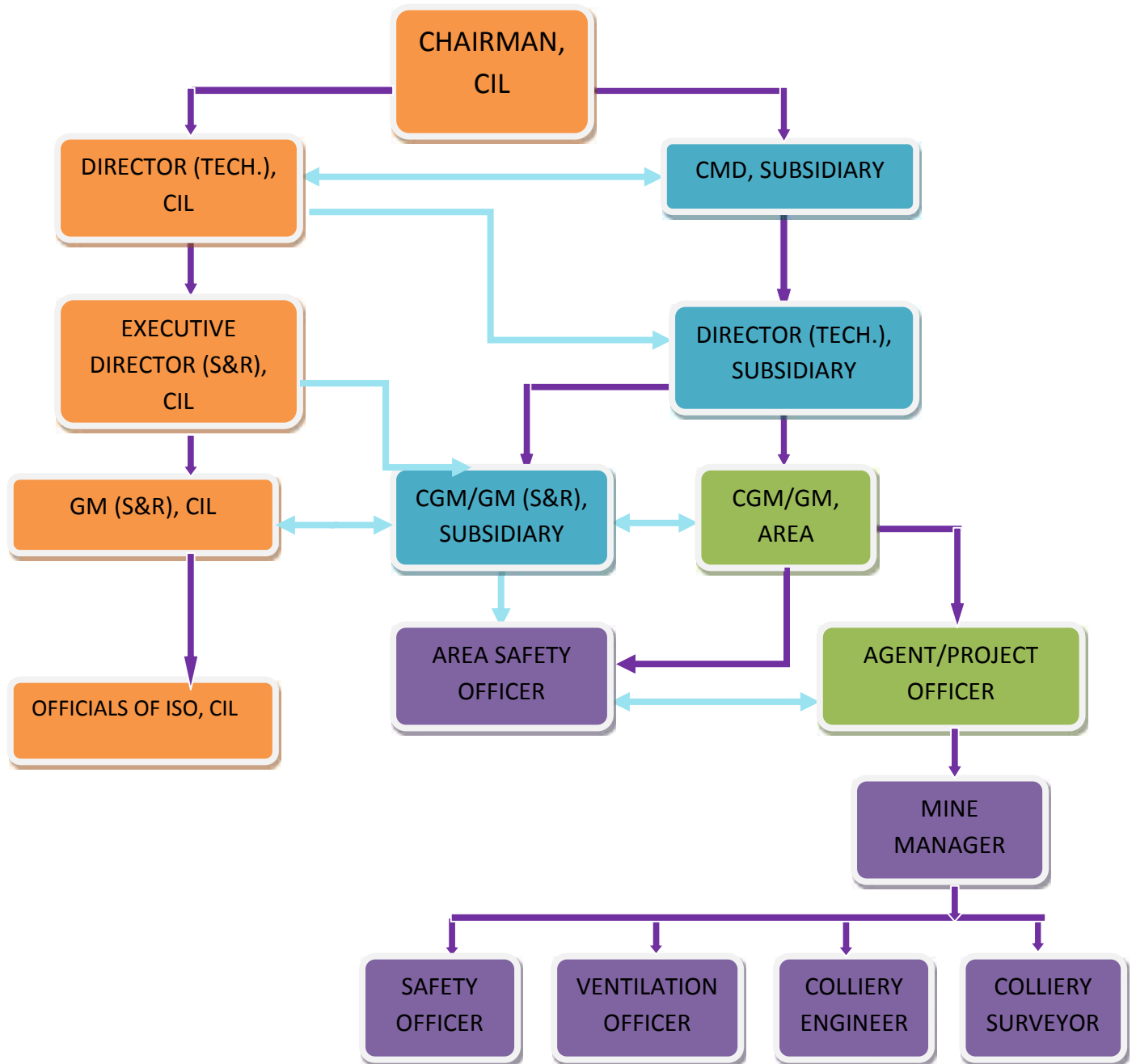
SAFETY AT A GLANCE

Coal India has always given the highest priority towards “Safety”. Safety is a part of its core process as is embodied in its Mission. CIL has a well-defined *Safety Policy* and a multi-disciplinary *Internal Safety Organization* (ISO) functioning in each subsidiary company including CIL to monitor its implementation.

The safety performance has significantly improved over the years through:

- Commitment and participation by Management, Regulators, Trade Unions and Employees.**
- Well planned and conscientious safety awareness drives.**
- Continuous training and skill up-gradation of the front line Officials and grass root level Employees.**
- Adoption of New Technology encompassing Safe Mining Methods and Equipment.**
- Timely assistance from the Ministry of Coal.**

ORGANISATIONAL STRUCTURE FOR SAFETY



Administrative relation: —

Functional relation: —

सुरक्षा एवं स्वास्थ्य के प्रति प्रतिज्ञा

मैं सत्यनिष्ठा से प्रतिज्ञा करता हूँ कि मैं सुरक्षा और स्वास्थ्य के लिए अपने आप को समर्पित करूँगा तथा सभी संवैधानिक प्रावधानों का पालन करने हेतु यथाशक्ति प्रयत्न करूँगा और निश्चित रूप से इन लक्ष्यों को प्राप्त करने के लिए प्रेरणादायक अभिवृत्तियों एवं आदतों का विकास करूँगा।

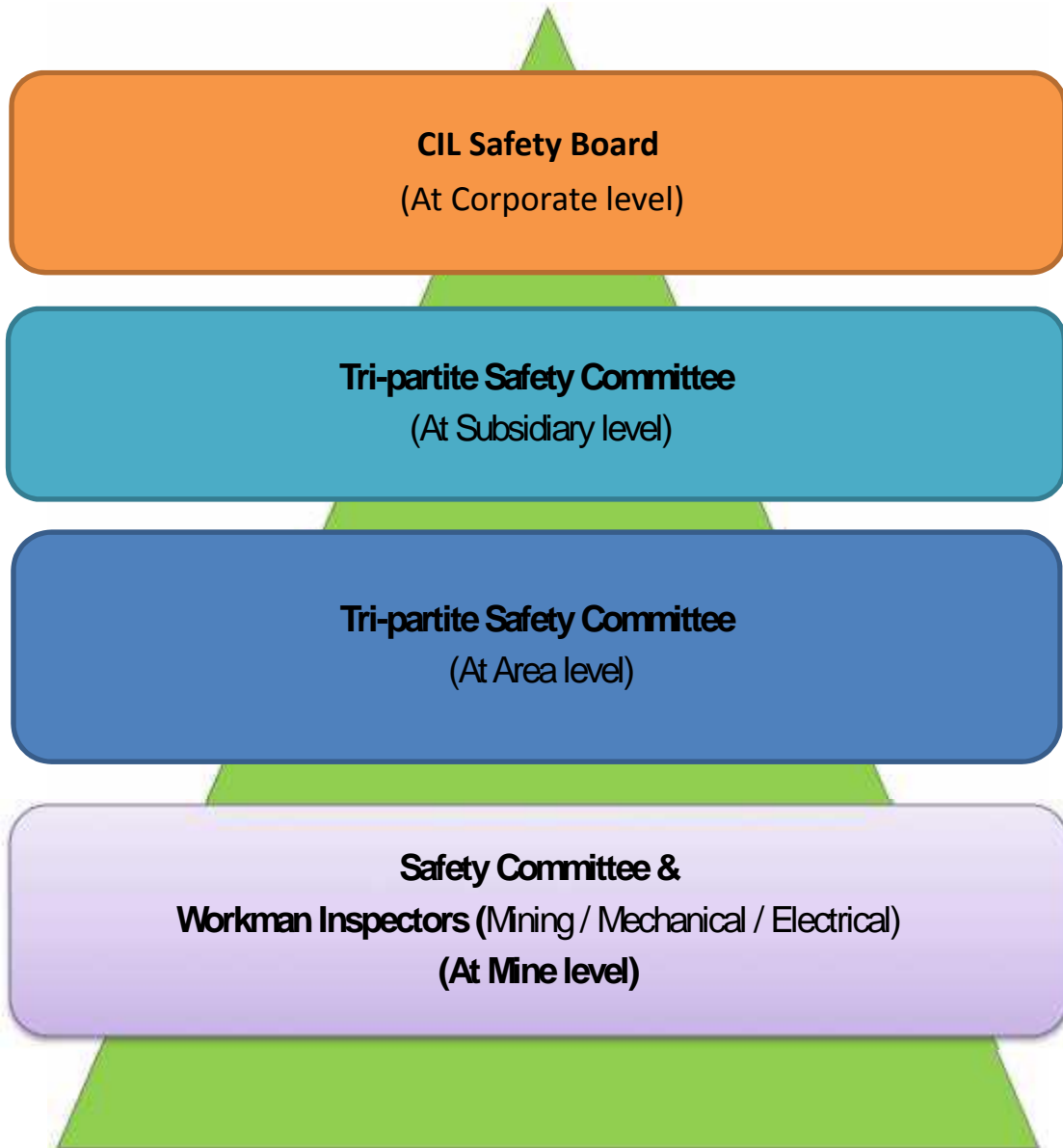
मैं शून्य क्षति दक्षता प्राप्त करने हेतु हर संभव प्रयास करूँगा और मैं जानबूझकर या लापरवाहीवश ऐसा कुछ नहीं करूँगा जिसके फलस्वरूप मैं या खदान में कार्यरत मेरे सहयोगी खतरे में पड़ जायें अथवा खदान एवं उसके आसपास की किसी भी संपत्ति का नुकसान हो।

Safety and Health Pledge

I solemnly pledge that I will dedicate myself to the cause of Safety and Health and will do my best to observe all statutory provisions and develop attitude and habits conducive for achieving these objectives.

I will strive to do everything possible to achieve Zero Harm Potential and will not do anything willfully or negligently which may endanger myself or any of my colleagues working in the mine or damage any property of the mine and surroundings.

SAFETY MONITORING



Safety Policy

- Operations and systems will be planned and designed to eliminate or materially reduce mining hazards.
- Implement Statutory Rules and Regulations and strenuous efforts made for achieving superior standards of safety.



- To bring about improvement in working conditions by suitable changes in technology.



- Provide material and monetary resources needed for smooth and efficient execution of Safety Plans.



- Deploy safety personnel wholly for accident prevention work.



- Organize appropriate forums with employees' representatives for Joint consultations on safety matters and secure their motivation and commitment in Safety Management.



- Prepare annual Safety Plan and long term Safety Plan at beginning of every calendar year, mine-wise and for the company to effect improved safety in operations as per prevailing geo-mining conditions.
- prepare the mines for onset of monsoon.
- implement the decisions taken by the National Conference on Safety in Mines and Parliamentary Committees on Mine Safety.
- take measures for overcoming accident proneness by prioritizing sensitive areas like roof-fall, haulage, explosives, dumper movement etc.

- Set up framework for execution of the Safety Policy and Plans through the General Managers of Areas, Agents, Managers and other Safety Personnel of the mines.
- Multi-level monitoring of the implementation of the Safety Plans through Internal Safety Organization at the Company level and Area Safety Officers at Area level.



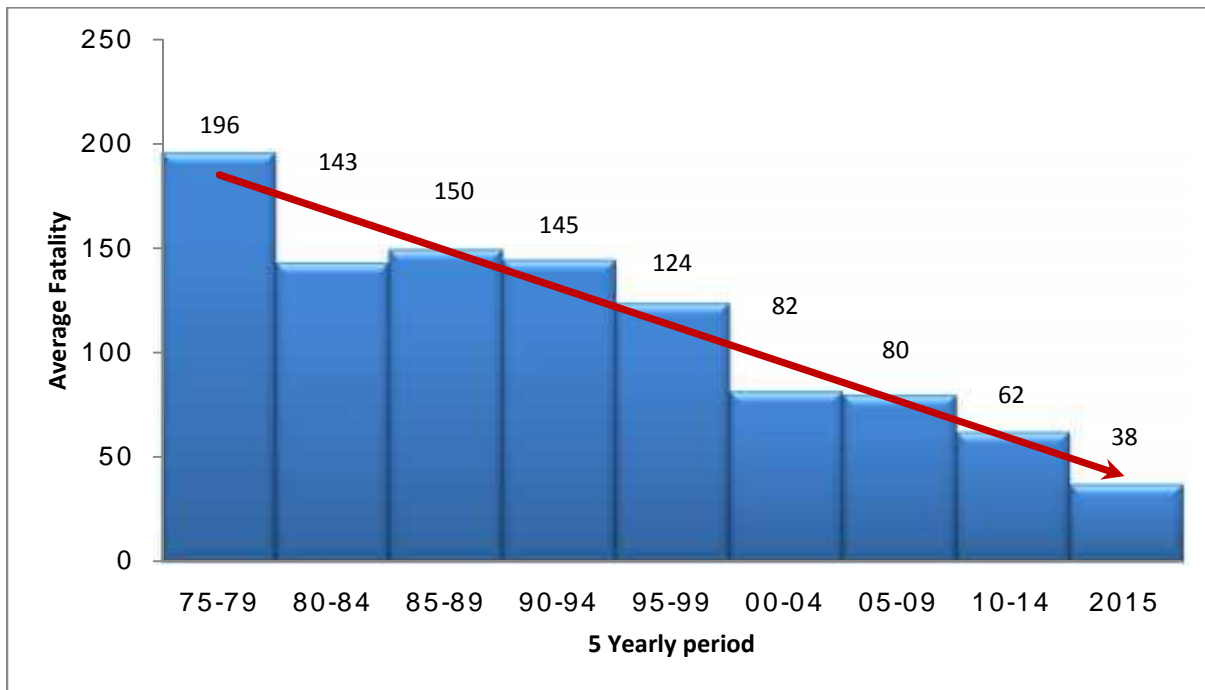
- All senior executives at all levels of management, will continue to inculcate a safety consciousness and develop involvement in practicing safety towards accident prevention in their functioning.
- Institute continuous education, training and retraining of all employees with the emphasis laid on development of safety oriented skills.

- Continual efforts to improve working & living conditions and health of all employees both in and outside the mines.

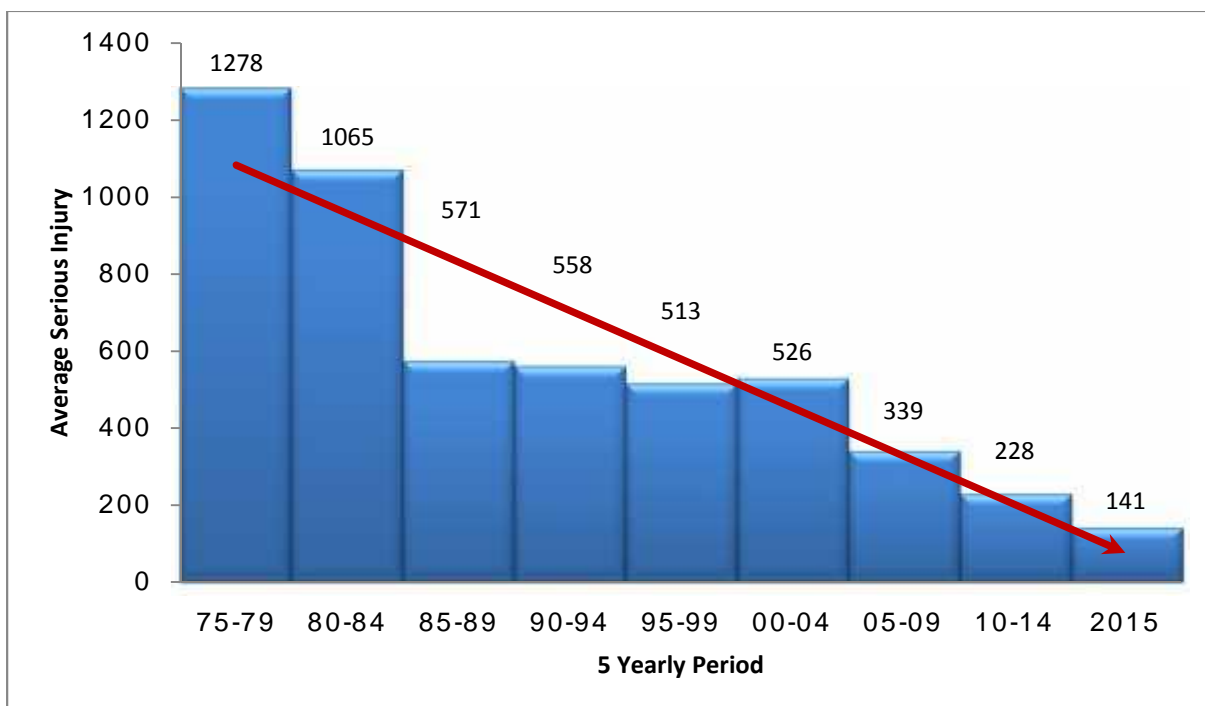


Accident Statistics

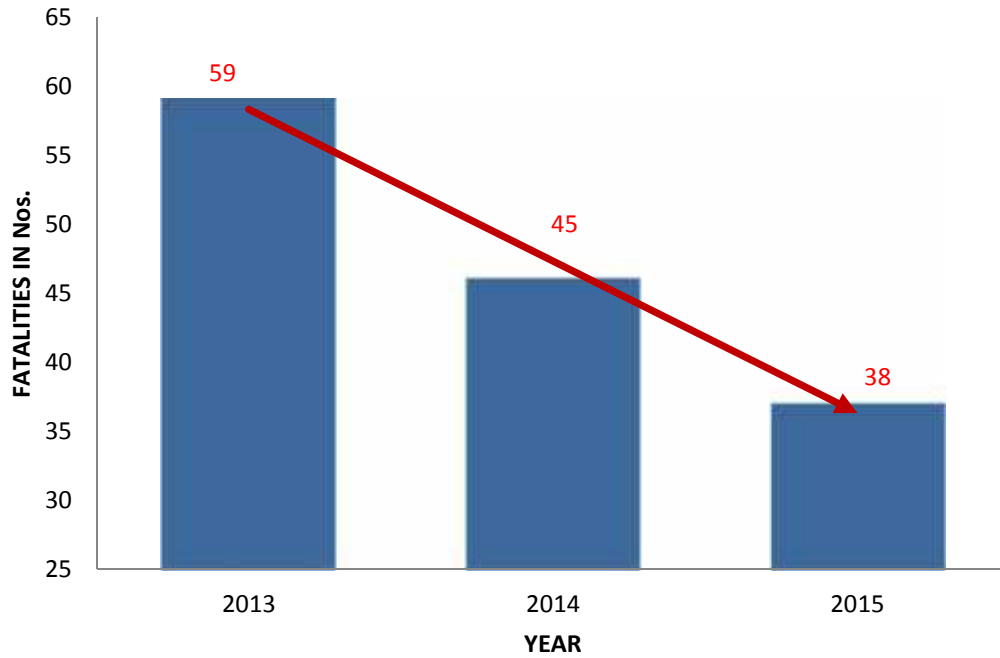
A. TREND OF 5-YEARLY AVERAGE FATALITIES SINCE INCEPTION (1975 - 2015)



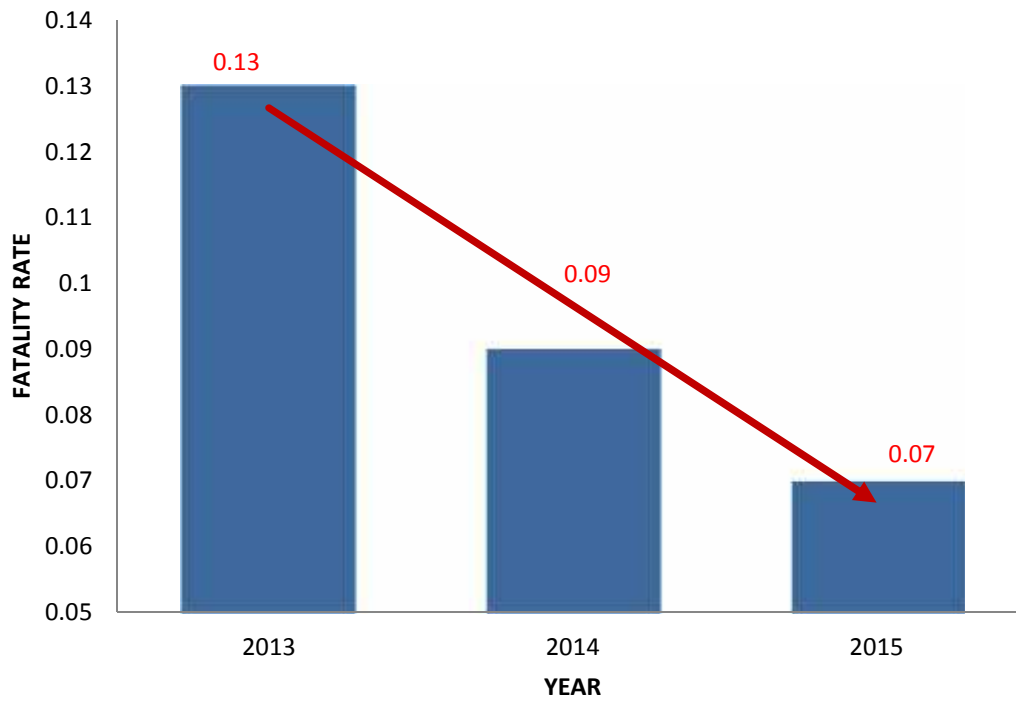
B. TREND OF 5-YEARLY AVERAGE SERIOUS INJURIES SINCE INCEPTION (1975 - 2015)



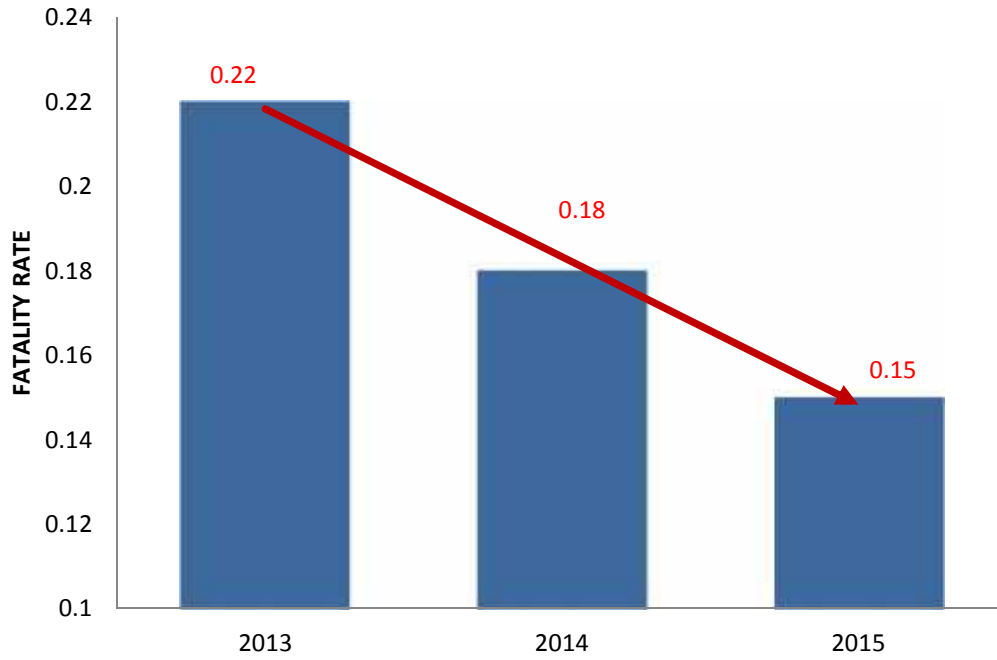
C. TREND OF FATALITIES IN LAST THREE YEARS (2013 - 2015)



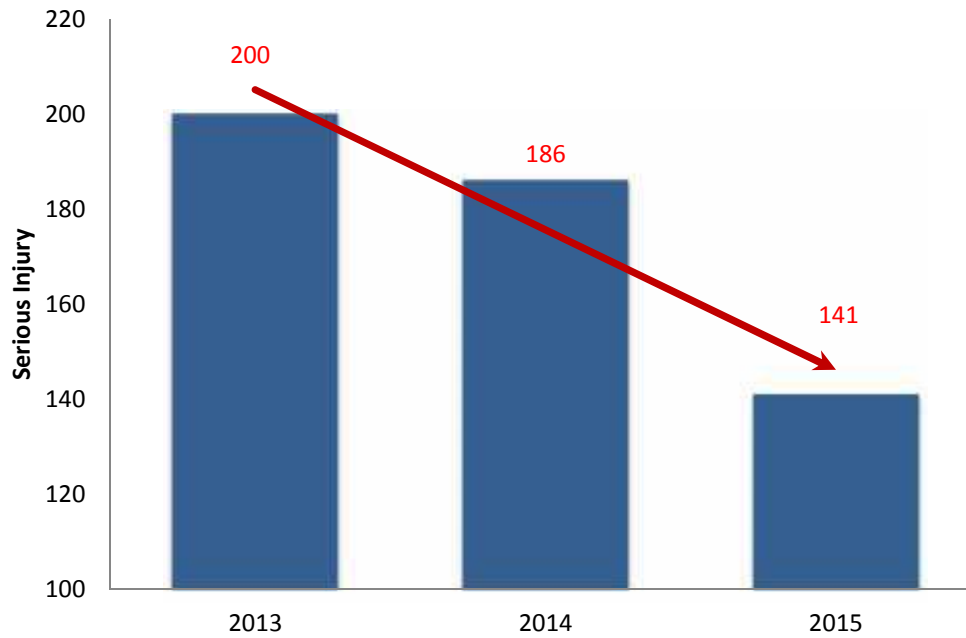
D. TREND OF FATALITY RATE PER MILLION TONNE OF PRODUCTION (2013 - 2015)



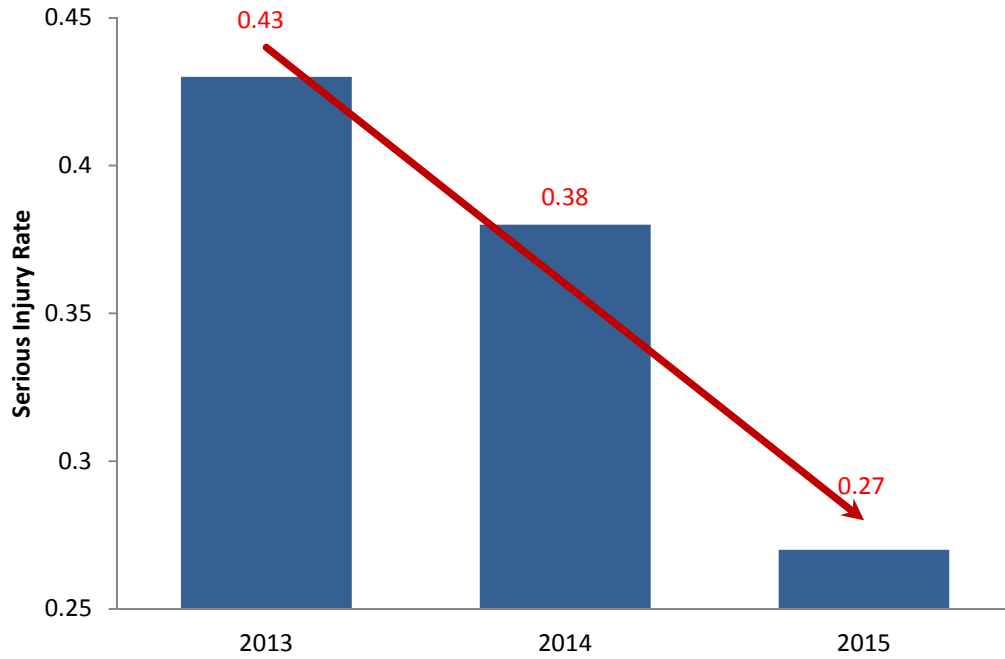
E. TREND OF FATALITY RATE PER THREE LAKH MANSHIFTS (2013 - 2015)



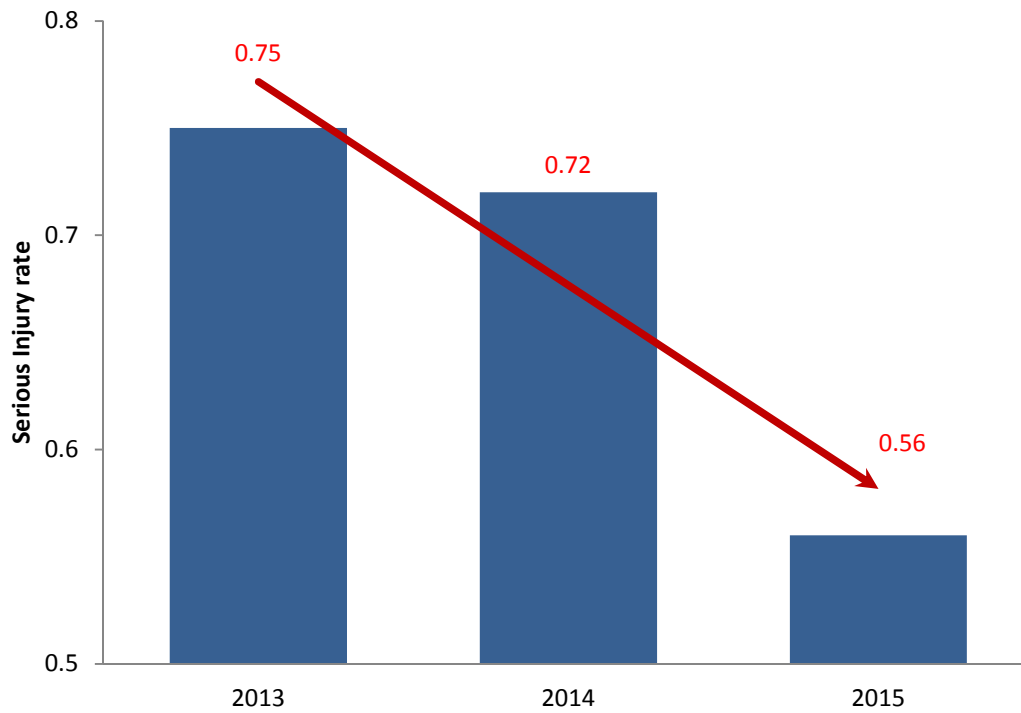
F. TREND OF SERIOUS INJURIES IN LAST THREE YEARS (2013 - 2015)



G. TREND OF SERIOUS INJURY RATE PER MILLION TONNE (2013 - 2015)



H. TREND OF SERIOUS INJURY RATE PER THREE LAKH MANSHIFTS (2013 - 2015)



Accident Statistics of CIL since 1975

Year	Fatal Accidents		Serious Accidents		Fatality Rate		Serious Injuries Rate	
	Accident	Fatalities	Accident	Injuries	Per Million Tonne	Per 3 Lakh Man-shifts	Per Million Tonne	Per 3 Lakh Man-shifts
1975	177	233	1456	1515	2.62	0.52	17.03	3.41
1976	177	249	1194	1248	2.72	0.56	13.63	2.81
1977	177	197	1198	1255	2.23	0.45	14.19	2.88
1978	139	154	1180	1227	1.73	0.35	13.78	2.77
1979	114	147	1090	1143	1.61	0.33	12.55	2.57
1980	112	129	1132	1202	1.35	0.28	12.54	2.65
1981	127	145	1214	1276	1.35	0.32	11.90	2.81
1982	123	148	1161	1218	1.32	0.31	10.86	2.56
1983	127	160	980	1026	1.36	0.33	8.70	2.09
1984	123	134	603	605	1.05	0.27	4.73	1.20
1985	136	152	507	524	1.15	0.31	3.97	1.07
1986	133	154	508	525	1.08	0.31	3.68	1.06
1987	130	141	558	577	0.90	0.29	3.69	1.18
1988	137	151	552	576	0.91	0.30	3.44	1.13
1989	131	150	626	654	0.85	0.31	3.72	1.33
1990	121	135	590	633	0.75	0.28	3.53	1.32
1991	115	120	476	508	0.58	0.24	2.51	1.02
1992	131	150	443	492	0.69	0.31	2.20	0.98
1993	118	132	441	461	0.61	0.28	2.14	0.97
1994	113	186	673	697	0.84	0.40	3.14	1.50
1995	113	192	575	612	0.83	0.45	2.65	1.14
1996	96	110	484	505	0.44	0.24	2.02	1.11
1997	99	111	486	519	0.43	0.25	1.99	1.15
1998	91	104	395	427	0.40	0.24	1.64	1.02
1999	93	102	467	502	0.40	0.25	1.98	1.26
2000	80	100	547	583	0.37	0.25	2.16	1.50
2001	70	105	529	564	0.38	0.28	2.06	1.56
2002	62	69	482	509	0.24	0.19	1.74	1.44
2003	60	64	447	467	0.21	0.18	1.48	1.35
2004	66	70	491	508	0.21	0.21	1.55	1.50
2005	76	97	391	405	0.29	0.28	1.20	1.18
2006	51	106	317	336	0.30	0.32	0.96	1.02
2007	59	61	326	340	0.16	0.19	0.92	1.05
2008	61	73	356	363	0.19	0.23	0.91	1.15
2009	55	62	285	290	0.15	0.21	0.60	0.82
2010	75	94	292	308	0.22	0.32	0.64	0.95
2011	50	52	242	256	0.12	0.19	0.60	0.90
2012	57	60	212	219	0.13	0.22	0.48	0.79
2013	55	59	196	200	0.13	0.22	0.43	0.75
2014	43	45	183	186	0.09	0.18	0.38	0.72
2015	38	38	134	141	0.07	0.15	0.27	0.56

INITIATIVES TAKEN FOR IMPROVEMENT OF SAFETY IN MINES



Surface Miner



240 Te Dumper



320 mm Drill

Enhanced
Safety in
OCPs



42 Cu. m. Shovel



24/96 Dragline

INITIATIVES TAKEN FOR IMPROVEMENT OF SAFETY IN MINES



Continuous Miner



Powered Support Longwall



Shuttle Car

Enhanced Safety in UG Mines



SDL



Load Haul Dumper



Highwall Miner



Quad Bolter

UG Mine Environment Monitoring



Multi-Gas Detector



Environmental Tele-Monitoring System



Man Riding System

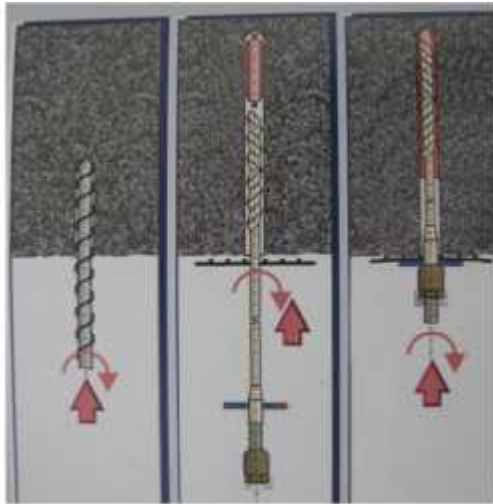


UG Strata Management

Universal Drilling Machine



Resin Bolting



Anchorage Testing Machine



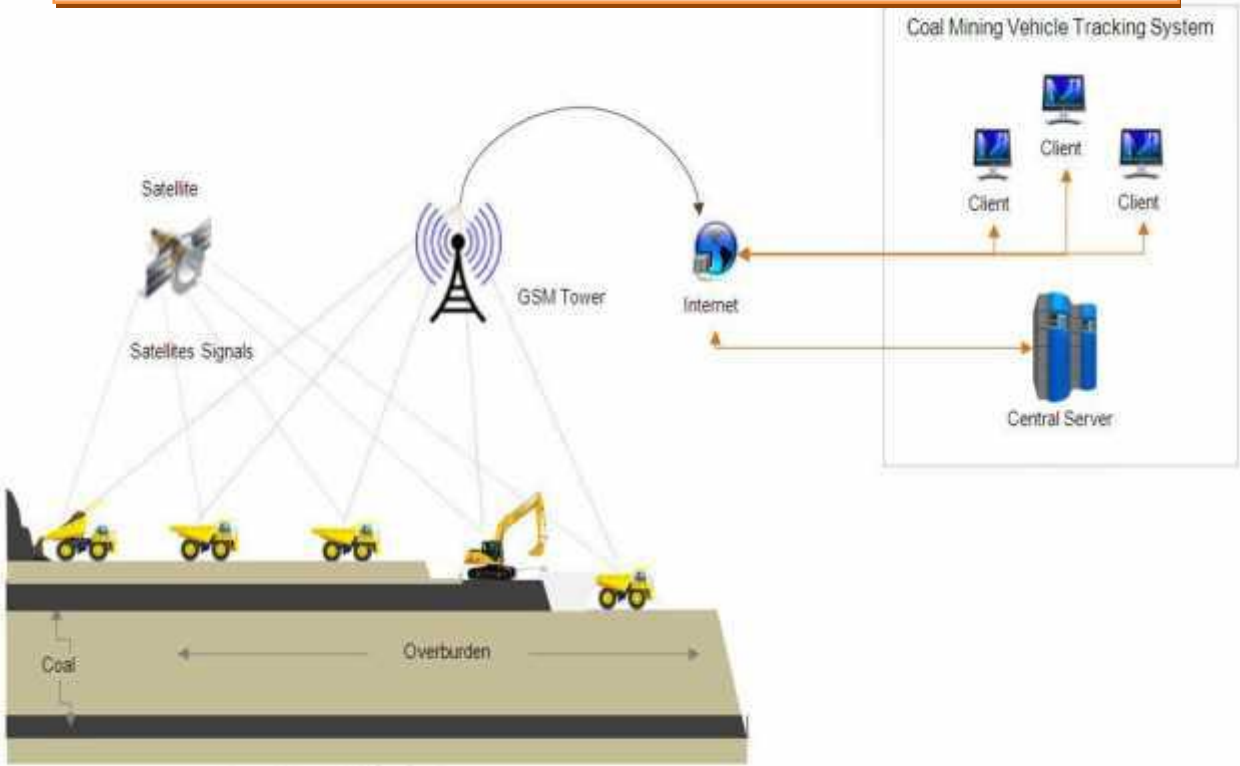
Auto Warning Tell-Tale



Load Cell



GPS based vehicle tracking system



Mining vehicles with GPS Device

Simulator for training of dumper operator



Safety features in dumper



Dust control and monitoring



Mobile water sprinkler



Water treated haulroad



WATER SUPPLY FROM
THE WATER SPRINKLING OF WATER
SPRINKLING SYSTEM



Fixed water sprinkler

Personal Dust Sampler



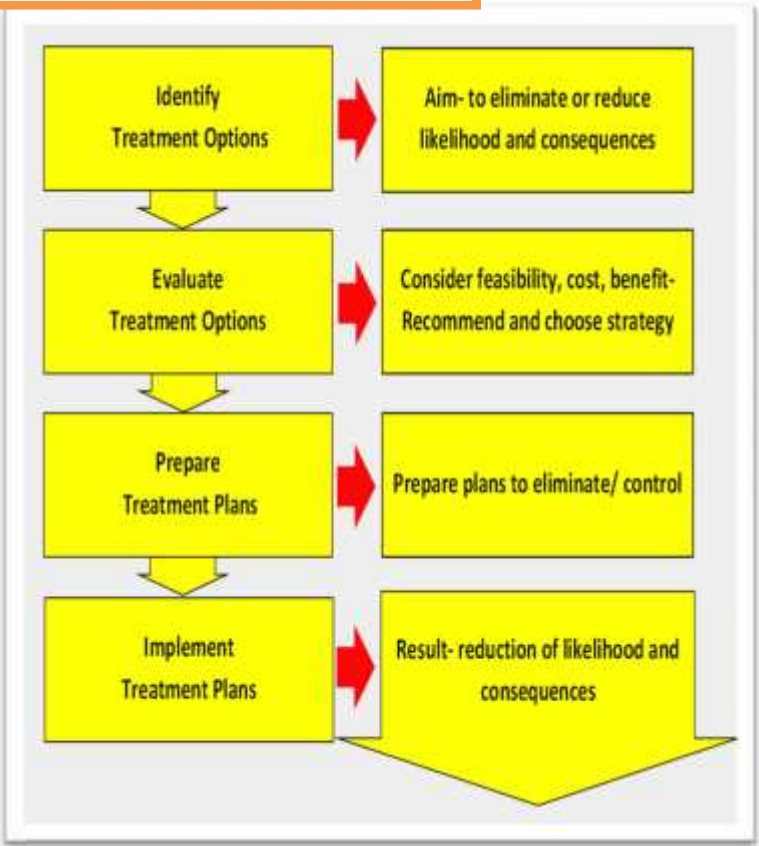
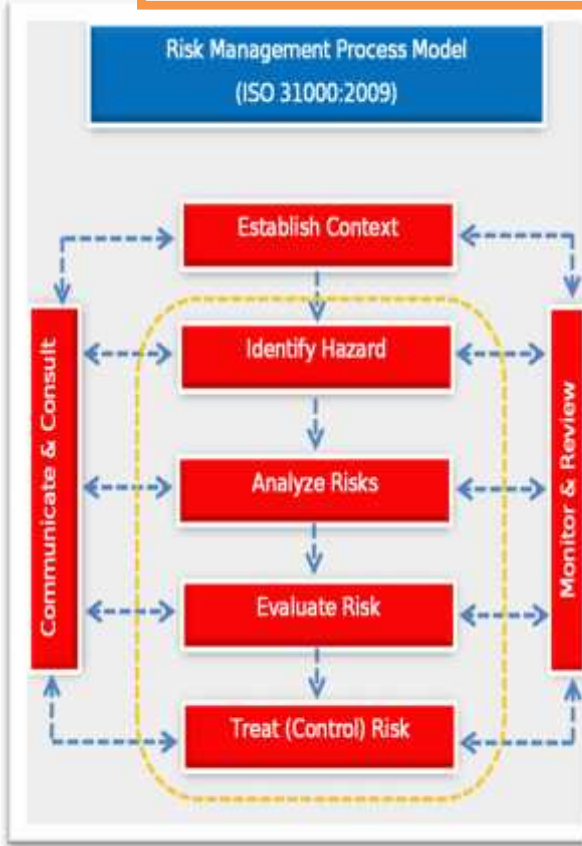
Gravimetric Dust Sampler





RISK MANAGEMENT

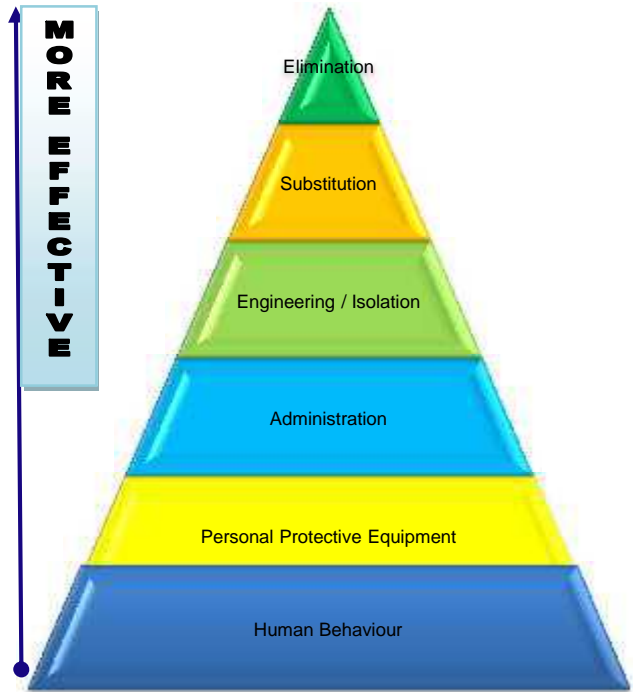
Risk assessment based Safety Management Plan (SMP) prepared and Risk based SOPs are implemented



WORK PROCESS MODEL



HIERARCHY OF CONTROLS



Risk Ranking Method

Risk Score = Consequence x Likelihood

Likelihood = Probability x Exposure

Risk Score / Risk Ranking

High Risk: Risk Score >200, Medium Risk: 200 > Risk Score > 20 &

Low Risk: Risk Score < 20

Scale for Consequence		Scale for Exposure		Scale for Probability	
Several dead	5	Continuous	10	May well be expected	10
One dead	1	Frequent(daily)	5	Quite possible	7
Significant chance of fatality	0.3	Seldom (weekly)	3	Unusual but possible	3
One permanent disability/ less chance of fatality	0.1	Unusual (monthly)	2.5	Only remotely possible	2
Many lost time injury	0.01	Occasional (yearly)	2	Conceivable but unlikely	1
One lost time injury	0.001	Once in 5 years	1.5	Practically impossible	0.5
Small injury	0.0001	Once in 10 years	0.5	Virtually impossible	0.1
		Once in 100 years	0.02		

TAKE - 5 (Personal Risk Assessment)

S. No.	STEPS	ACTION
1	Stop, step back, observe	Observe the work area and surrounding location for hazards.
2	Think through the task	Consider the sequence of steps involved in carrying out the task from start to finish.
3	Identify any hazards	Identify the hazards associated with the task present in the immediate and surrounding work area, and hazards generated by the task.
4	Control the hazards	If the hazard is not controlled and the work area not safe - do not start work, report to your superior official to review the risk assessment.
5	Complete the task	Once all control measures have been safely implemented commence the task

SAFETY CARD

ISSUED TO EMPLOYEES OF CIL



Safety Campaign COAL INDIA LTD
as per DGMS (Tech) Circular (MAMID)/04
Dated 17.07.2013

सुरक्षा मेरी जिम्मेवारी है

हमेशा सुरक्षा नियमों का पालन करें

(Front)

क्या आपने पूछा ??

1. क्या मुझे इस वर्ष कार्य हेतु पर्याप्त प्रशिक्षण दिया गया है या क्या मैं पर्याप्त रूप से प्रशिक्षित पर्यवेक्षक के साथ हूँ ?
2. क्या इस कार्य के लिए सुरक्षित कार्यप्रणाली (एस. ओ. पी.) बनाई गयी है ?
3. क्या मेरे पास कार्यस्थल की अपेक्षित जानकारी है ?
4. क्या दिए गए उपकरण एवम् यंत्र ठीक अवस्था में हैं ?
5. क्या मेरे पास आवश्यक पी. पी. ई. (निजी रक्षा उपकरण) है ? (दस्ताने, चक्षु रक्षा, उच्चदृश्य वाले आवरण, कर्ण सुरक्षा, सुरक्षा जूता एवं सुरक्षा टोपी इत्यादि)
6. क्या मुझे इस कार्य हेतु किसी विशेष ऑथोराइजेशन/परमिट/अनुमति की जरूरत है ?
7. क्या मौसम, कार्य परिवेश या अपर्याप्त प्रकाश कार्यसुरक्षा को प्रभावित करते हैं ?
8. क्या मेरी गतिविधि से कोई खतरा उत्पन्न हो सकता है या मैं दूसरों की

RESCUE SERVICES IN CIL



Well-equipped Rescue Organization staffed by sufficient number of rescue trained personnel and equipped with modern rescue equipment is maintained by each subsidiary company of CIL.

All Mine Rescue Stations, Rescue Rooms and Rescue Room with Refresher Training facilities are equipped with rescue apparatus as per the Rescue Rules - 1985.



Self-Contained Breathing Apparatus



Self-Contained Self Rescuer



Self-Contained Breathing Apparatus

COMPANY-WISE RESCUE STATION / RRRT / RR IN CIL

COMPANY	RESCUE ESTABLISHMENTS		
	MINE RESCUE STATION (MRS)	RESCUE ROOM WITH REFRESHERS TRAINING (RRRT)	RESCUE ROOM (RR)
ECL	SITARAMPUR	KENDA	JHANJRA KALIDASPUR PERBELIA MUGMA
BCCL	DHANSAR	MADHUBAND SUDAMDIH	MOONIDIH MURULIDIH CHATABAND
CCL	RAMGARH	KATHARA CHURI	DHORI KEDLA URIMARI
WCL	NAGPUR	PARASIA PATHAKHERA TADALI /(CHANDRAPUR)	DAMUA /(TANDSI) NEW MAJRI SASTI
SECL	MANENDRAGARH	BURHAR KUSMUNDA BISRAMPUR BAIKUNTHPUR NAWROZABAD	CHIRIMIRI / HALDIBARI RAIGARH RAJGAMAR BHATGAON JAMUNA & KOTMA
MCL	BRAJRAJNAGAR	TALCHER	-
NEC	-	LEDO	-
CIL	6	15	18