



45001:2018



Welcome to Intro to ISO 45001:2018

What is OH & S

Occupational Health and Safety (OH&S) are *Conditions and factors that affect the well-being of employees, temporary workers, contractor personnel, visitors and any other person in the workplace.*

Conditions and factors:

Safe Place of Work

Safe Equipment

Safe Use of Substances

Safe Systems of Work

Welfare of the Work Force

Salient Features of ISO 45001:2018

- **ISO 45001** was published on **March 12,2018** and is the new international standard for occupational health and safety (OH&S) management System
- ISO 45001 gives guidance for its use to enable organizations to provide safe and healthy workplaces by preventing work-related injuries, illnesses, and fatalities and by proactively improving OH&S performance
- ISO 45001 is applicable to any organization worldwide regardless of its size, type, or nature
- ISO 45001 replaces OHSAS 18001(organizations currently certified under OHSAS 18001 will have time until March 12,2021 to migrate to ISO 45001)

Similarities Between ISO 45001 & OHSAS 18001

- **Intent:** The overall intent to create a framework for managing the **prevention of employee injuries, illnesses, and fatalities** is the same for both standards
- **Plan-Do-Check-Act:** The PDCA cycle remains the fundamental operating principle in both standards
- **Other Similarities:** Many of the requirements covered in OHSAS 18001, although consolidated, relocated, or expanded on, are found in ISO 45001, including **policy requirements; identification of legal and other requirements; improvement objectives; awareness requirements; competency requirements; resources needed to support the system; and requirements for monitoring, measuring, and analyzing OH&S performance and improvement**

The Clause Structure



ISO 45001:2018 Clause Structure

- ❖ *Clause 1: Scope*
- ❖ *Clause 2: Normative References : No normative references*
- ❖ *Clause 3: Terms and Definition : 37 nos of definitions related to OHSMS*
- ❖ *Clause 4 - Context of the Organisation*
 - 4.1 Understanding the Organisation & its Context
 - 4.2 Understanding the needs & expectations of interested parties
 - 4.3 Determining the Scope of OHSMS
 - 4.4 OH&S Management System
- ❖ *Clause 5 – Leadership & Worker Participation*
 - 5.1 Leadership & Commitment
 - 5.2 OH&S Policy
 - 5.3 Organisational Roles , Responsibilities & Authorities
 - 5.4 Consultation & Participation of Workers

ISO 45001:2018 Clause Structure – Contd.

❖ *Clause 6 – Planning*

6.1 Actions to address Risks & Opportunities

6.1.1 General

6.1.2 Hazard Identification & Assessment of risks & Opportunities

6.1.2.1 Hazard Identification

6.1.2.2 Assessment of OH&S Risks and other Risks to the OHSMS

6.1.2.3 Assessment of OH&S Opportunities & other Opportunities for OHSMS

6.1.3 Determination of Legal & Other Requirements

6.1.4 Planning Actions

6.2 OH&S Objectives & Planning to Achieve them

6.2.1 OH&S Objectives

6.2.2 Planning to achieve OH&S Objectives

❖ *Clause 7 – Support*

7.1 Resources

7.2 Competence

7.3 Awareness

7.4 Communication

7.4.1 General

7.4.2 Internal Communication

7.4.3 External Communication

7.5 Documented Information

7.5.1 General

7.5.2 Creating & Updating

7.5.3 Control of Documented Information

ISO 45001:2018 Clause Structure – Contd.

❖ *Clause 8 – Operation*

8.1 Operational Planning & Control

8.1.1 General

8.1.2 Eliminating Hazards and reducing OH&S Risks

8.1.3 Management of Change

8.1.4 **Procurement**

8.1.4.1 General

8.1.4.2 Contractors

8.1.4.3 Outsourcing

8.2 Emergency Preparedness & Response

ISO 45001:2018 Clause Structure – Contd.

❖ *Clause 9– Performance Evaluation*

9.1 Monitoring , Measurement , Analysis & Evaluation

9.1.1 General

9.1.2 Evaluation of Compliance

9.2 Internal Audit

9.2.1 General

9.2.2 Internal Audit Programme

9.3 Management Review

❖ *Clause 10– Improvement*

10.1 General

10.2 Incident , Nonconformity & Corrective Action

10.3 Continual Improvement

Implementation Guidelines

- **OHSMS Manual Revision**
- **Revision of Safety Manual & Safety Procedures**
- **Updation of Process wise OHSMS Risk & Opportunities in the 24 identified Works Department**
- **OHSMS Leaflet for awareness**
- **Formulation of OHSMS Core Committee**
- **Formulation & Monitoring of OHSMS Objectives & Action Plan**
- **Monitoring of OHSMS Performance Parameters**
- **Mechanism for Management Review , OHSMS Core Committee Review , Communication & Involvement**
- **Revision of OHSMS Risk Assessment Procedure , Checklist , Emergency Preparedness & Response Procedure (Department wise) and related RCPs , SOPs , SMPs**

Implementation Plan

1. CO	8. CP II	15. HSM	22. PD
2. CCD	9. SMS I	16.ERWPP	23. OBBP
3. BF	10. SMS II	17.SWPP	24. Cr Maint
4. Oxygen Plant	11. PBS	18. CRM	
5. SP II	12. PM	19. SSM	
6. SP III	13. NPM	20.Mech Shop	
7. LDBP	14. SPP	21. TRM	

Associated Agency : HRD , OHSC , SED , Fire Services

Examples of OHSMS Objectives

Sl	Objectives	Targets
1	Occupational Health & Safety Training for employees & contractor workers	At least one programme / month
2	Use of PPEs by employees	100 %
3	Provide & Ensure Sufficient illumination in working area, basement and cellars	To improve by 20 %
4	To ensure working of all voice communication systems	To improve by 10%
5	To provide missing hand railing in all areas	100 %
6	No. of Reportable Incidents (max)	Nil
7.	Health Checkup	To improve by 10% every year
8.	Double Earthing of all electrical equipments	100%
9.	Making Safety Protocol of all critical jobs	100%
10.	Conducting mock drill for emergency preparedness & response	Once in a year

OHSMS Policy

INTEGRATED MANAGEMENT SYSTEM POLICY

(Management Systems for Quality, Environment, Occupational Health & Safety and Social Accountability)

***Rourkela Steel Plant, a unit of SAIL,
is committed to :***

- Provide defect free products and services to all its customers on time and every time by establishing an effective Quality Management System.
- Prevent pollution and maintain a clean, green and sustainable environment in and around the Steel Plant as a part of its Corporate Social Responsibility.
- Eliminate hazards, reduce Occupational Health & Safety risks and prevent injury & ill health by providing healthy and safe working environment for its employees and for all those working in the Plant.
- Consultation and participation with workers and their representatives.
- Provide socially accountable work culture to all its stakeholders.
- Comply with applicable legal and other requirements related to Integrated Management System.
- Adhere to all the requirements of internationally recognized QMS, API Q1, EMS, OHSMS & SA standards and review the objectives and targets periodically for effectiveness and continual improvement.



Date :20.03.2019
STEEL AUTHORITY OF INDIA LIMITED
Rourkela Steel Plant


(Deepak Chattaraj)
Chief Executive Officer

OHSMS Risk & Opportunity

Types of Activities

- **Routine Activities**
- **Non-Routine Activities**
- **Emergency Situations**
- **Activities by own employees , Contractor Workers & Visitors**

Sources of Hazards

EQUIPMENTS	ELECTRICAL MECHANICAL ELECTRONIC MATERIAL TRANSFER NETWORKS
SUBSTANCES	CHEMICALS FUELS EXPLOSIVES TOXIC MATERIALS RADIATION MATERIALS
MOVEMENTS	MATERIALS HANDLING FALL OF MATERIALS/TOOLS TOOLS¹⁷ HANDLING

Sources of Hazards

ENERGIES	ELECTRICAL MECHANICAL RADIATION NOISE VIBRATIONS LIGHT HEAT
WORK PLACES (PHYSICAL CONDITIONS)	SLIPPERY SURFACES UNEVEN SURFACES HIGH PLACES INADEQUATE GUARDS HANDRAILS etc.

Sources of Hazards

WORK PLACES (Environment)	DUST TOXIC GASES FUMES ETC.
TAKE OPINIONS OF	EMPLOYEES WHO ARE INVOLVED EXPERTS/SPECIALISTS
GET INFORMATION FROM	MANUFACTURER'S MANUALS ACCIDENTS/INCIDENTS NEAR MISSES REPORTS EMPLOYEE OH REPORTS

Examples of Hazards During Work Activities

- **SLIPS & FALLS ON THE LEVEL**
- **FALLS OF PERSON FROM HEIGHT**
- **FALLS OF TOOLS, MATERIAL FROM HEIGHT**
- **INADEQUATE HEAD ROOM**
- **HAZARDS ASSOCIATED WITH MANUAL LIFTING / HANDLING OF TOOLS, MATERIALS ETC.**
- **HAZARDS FROM PLANT & MACHINES ASSOCIATED WITH ASSEMBLY, COMMISSIONING, OPERATION, MAINTENANCE, MODIFICATION, REPAIR & DISMANTLING, VEHICLE HAZARDS (BOTH)**
- **FIRE & EXPLOSION**

Examples of Hazards During Work Activities

- **SUBSTANCE THAT MAY BE INHALED**
- **SUBSTANCE THAT MAY DAMAGE EYE**
- **SUBSTANCE THAT MAY CAUSE HARM BY COMING IN CONTACT WITH THE SKIN**
- **SUBSTANCE THAT CAUSE HARM BY INGESTION**
- **HARMFUL ENERGIES**
- **WORK RELATED DISORDERS**
- **INADEQUATE THERMAL ENVIRONMENT, LIGHTING LEVELS.**
- **SLIPPERY UNEVEN GROUNDS/SURFACES**
- **INADEQUATE GUARD / HAND RAILS**
- **CONTRACTOR'S ACTIVITIES**

Examples of Risk

- **Burn Injury**
- **Body Injury**
- **Electrical Shock**
- **Suffocation / Lack of Ventilation**
- **Gas poisoning**
- **Irritation In Eyes**
- **Skin Allergy**
- **Sprain / Fracture**
- **Equipment Damage**
- **Hearing damage**

Hierarchy of Risk Control

1. ELIMINATION

2. SUBSTITUTION

3. ENGINEERING CONTROL

(a) ENCLOSURE (b) SAFETY DEVICES / GUARDS

4. ADMINISTRATIVE CONTROL

(a) SAFETY SYSTEMS OF WORK

**(b) WRITTEN PROCEDURES © ADEQUATE
SUPERVISION (d) TRAINING**

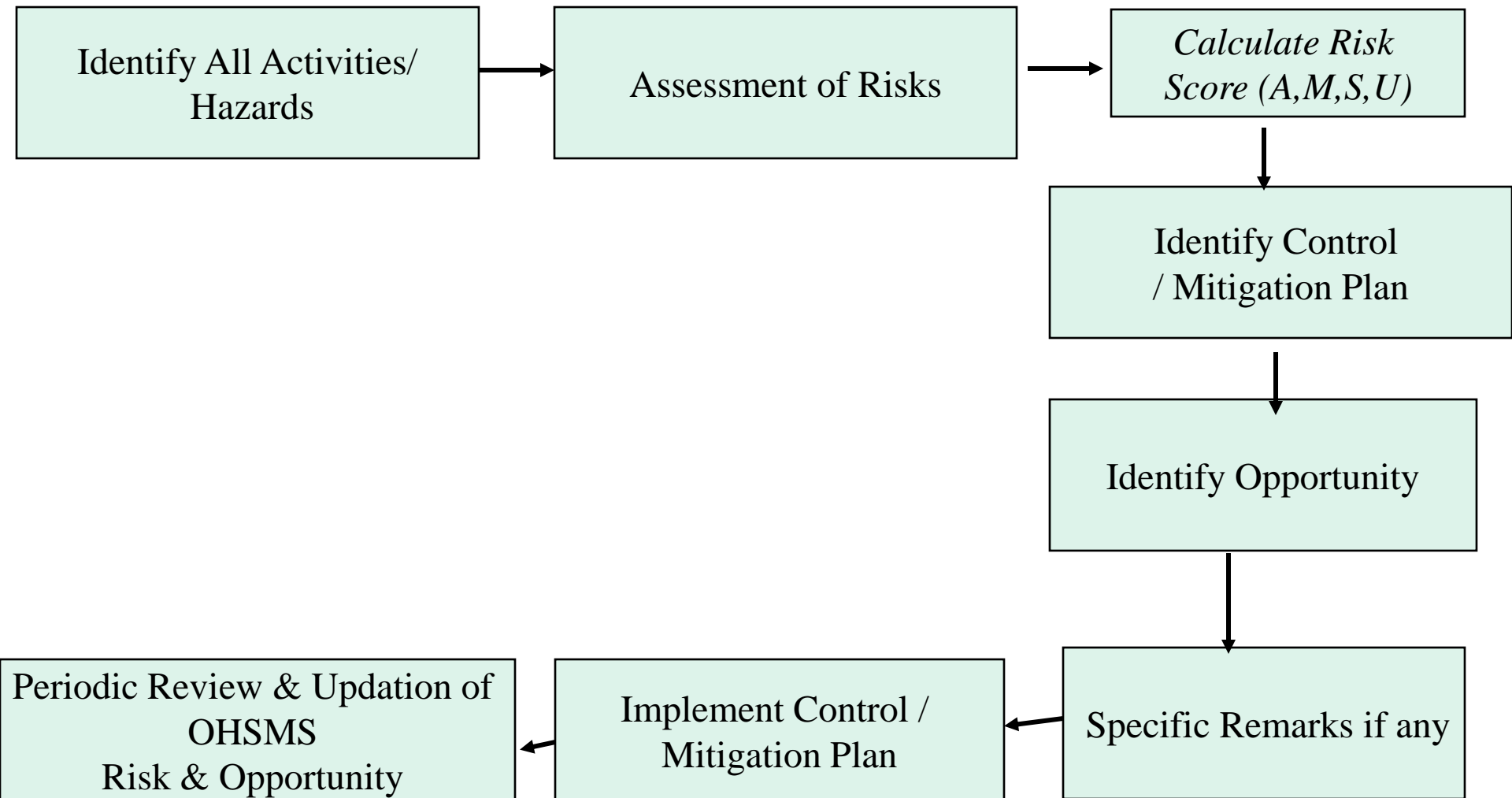
**(e) INFORMATION (SIGN BOARDS,
CHECKLISTS etc.)**

5. PPEs

Examples of Opportunities Achieved

- **Inspection & Auditing**
- **Improved Work Environment**
- **Healthy & Competent Workforce**
- **Reduction in Reportable Accidents**
- **Reduction in Health Hazards**
- **Regular Health Checkup of employees & Contract Workers**
- **Better Operational Control of all the processes**
- **Availability of SOP / SMP / RCP**
- **Conducting Mock Drill as per frequency planned**
- **Issuing Permit to Work**
- **Ergonomics or Injury Prevention related Assessments**
- **Availability of PPEs etc.**

OHSMS Risk & Opportunity Flowchart



Revised OHSMS Risk Format



Rourkela Steel Plant

<Deptt >

Doc Rev Status

Date:

ISO 45001:2018 HAZARD IDENTIFICATION, RISK & OPPORTUNITY ASSESSMENT AND DETERMINING CONTROLS

Legends	Probability (P)		Exposure (E)		Severity(S)		Risk	
R= Routine NR= Non– Routine E= Emergency	Almost Certain	5	Continuous	5	Multiple Fatality	5	Risk Score	Risk level
	Quite Possible	4	Frequent	4	Fatality	4	< 24	Acceptable(A)
	Unusual but Possible	3	Occasional	3	Serious Injury	3	24 to < 36	Moderate(M)
	Unlikely	2	Infrequent	2	Minor Injury	2	36 to < 48	Substantial(S)
	Very unlikely	1	Rare	1	First Aid	1	48 & Above	Unacceptable (U)

Sl. No.	Activity	OH & S Hazard(s)	Risk	R/ NR /E	Legal Y/ N	Risk Assessment					Control/ Mitigation plan(s)	Opportunit y (ies)	Remarks
						P	E	S	Risk Score P X E X S	Risk Level			

* If the hazard has legal control, Risk Level becomes automatically unacceptable irrespective of Risk Score

OHSMS Risk for OBBP



Rourkela Steel Plant

OBBP

Doc Rev Status R0

Date:

ISO 45001:2018 HAZARD IDENTIFICATION, RISK & OPPORTUNITY ASSESSMENT AND DETERMINING CONTROLS

Legends	Probability (P)		Exposure (E)		Severity(S)		Risk	
R= Routine NR= Non-Routine E= Emergency	Almost Certain Quite Possible Unusual but Possible Unlikely Very unlikely	5 4 3 2 1	Continuous Frequent Occasional Infrequent Rare	5 4 3 2 1	Multiple Fatality Fatality Serious Injury Minor Injury First Aid	5 4 3 2 1	Risk Score	Risk level
							< 24	Acceptable(A)
							24 to < 36	Moderate(M)
							36 to < 48	Substantial(S)
							48 & Above	Unacceptable (U)


Sl. No.	Activity	OH & S Hazard(s)	Risk	R/ NR /E	Legal Y/ N	Risk Assessment					Control/ Mitigation plan(s)	Opportunity (ies)	Remarks
						P	E	S	Risk Score P X E X S	Risk level			
1.	Operation of Belt Conveyor	Hit & press between belt and Idler while cleaning return side of Belt conveyor.	Loss of Hand, Loss of finger,	R	N	3	3	3	27	M	Follow SOP -20 & use PPE's	Maintain Healthy life, Zero accident	
2.	Cleaning of Chute.	Slip / Fall inside the chute.	Breaking of bones, Head injury or may be fatal	R	N	2	3	4	24	M	Follow SOP-20, Use PPE's . Don't cross over running belt..	Healthy life, physically fit and production improved.	

OHSMS Risk for OB BP

Doc. No. IMS/OHSMS/PR/SED/02 Rev.0 Date: 27/09/2018

OB BP

Page 1 of 16

		Rourkela Steel Plant									
		<OB BP>									
		ISO 45001:2018 HAZARD IDENTIFICATION, RISK & OPPORTUNITY ASSESSMENT AND DETERMINING CONTROLS									
		Doc Rev Status R-0 Date: 31-10-2018									
Legends		Probability (P)		Exposure (E)		Severity (S)		Risk Score		Risk level	
R= Routine	Almost Certain	5	Continuous	5	Multiple Fatality	5	Risk Acceptable (A) Moderate (M) Substantial (S) Unacceptable (U)				
NR= Non-Routine	Quite Possible	4	Frequent	4	Fatality	4					
E= Emergency	Unusual but Possible	3	Occasional	3	Serious Injury	3					
	Unlikely	2	Infrequent	2	Minor Injury	2					
	Very unlikely	1	Rare	1	First Aid	1					
								< 24 24 to < 36 36 to < 48 48 & Above			

SL No.	Activity	OH & S Hazard(s)	Risk	R/ NR/E	Legal Y/N	Risk Assessment					Control/ Mitigation plan(s)	Opportunity (ies)	Remarks
						P	E	S	Risk Score P X E X S	Risk level			
1.	Shifting of Yard equipment	#Slip & Fall	Multiple fractures.	NR	N	2	3	3	18	A	#Drain covering #Housekeeping	Healthy life, Become physically fit, Contribution towards production & productivity	
		#Tool Slippage	Minor body Injury.	NR	N	3	3	2	18	A	#Use of proper tool #Use of PPE		
		#Electrocution	Burns may affect body parts. fatal	NR	Y	3	3	3	27	U	#Permit to work # Use of PPE	Healthy life, Loss of mandays minimised. Zero accident can be achieved.	
		#Hit-n-press while lifting coupler	Multiple fractures.	NR	N	3	2	3	18	A	# Use of PPE	Healthy life, Become physically fit, Improved Productivity.	
		#Hit by running Machine	Multiple fractures, affect any body part.	NR	N	3	1	3	9	A	# Signal system	Zero accident can be achieved, Healthy life can be maintained.	

*If the hazard has legal control, Risk Level becomes automatically unacceptable irrespective of Risk Score

Sanjay Kumar
 (Simanchal Sanjay Kumar)
 Desat. - SOST. OB BP (E)

P. K. DAS
 08/10/18

P. K. DAS
 Dy. General Manager
 OB BP (Elect.)
 SAIL, RSP, Rourkela

A. K. K. K.
A. K. K. K.
 A. K. K. K. (OB & OPNPN)
 SAIL, RSP, ROURKELA

OHSMS Risk for CP II



सेल SAIL

Rourkela Steel Plant

CALCINING PLANT-II

Doc Rev Status: IMS/OHSMS/HIRA/CP-II(M)

Rev 00

Date: 07/11/2018

ISO 45001:2018 HAZARD IDENTIFICATION, RISK & OPPORTUNITY ASSESSMENT AND DETERMINING CONTROLS

Legends	Probability (P)		Exposure (E)		Severity (S)		Risk	
							Risk Score	Risk level
							< 24	Acceptable (A)
R= Routine	Almost Certain	5	Continuous	5	Multiple Fatality	5	24 to < 36	Moderate (M)
NR=Non-Routine	Quite Possible	4	Frequent	4	Fatality	4	36 to < 48	Substantial (S)
E= Emergency	Unusual but Possible	3	Occasional	3	Serious Injury	3	48 & Above	Unacceptable (U)
	Unlikely	2	Infrequent	2	Minor Injury	2		
	Very unlikely	1	Rare	1	First Aid	1		

Sl. No.	Activity	OH & S Hazard(s)	Risk	R/ NR/E	Legal Y/N	Risk Assessment				Control/ Mitigation plan(s)	Opportunity (ies)	Remarks
						P	E	S	Risk Score P X E X S			
1	Belt conveyor gear box replacement.	Slip of gear box.	Injury	NR	N	2	3	2	12	A	-Use of Proper PPE.	-Adequate supply of PPE.
		Breaking of sling.	Fall/Injury	NR	N	2	3	2	12	A	-Use of Proper PPE. -Use of a sling in good condition.	-Sling inspection - On the job training.
		Slip of spanner.	Injury	NR	N	2	2	2	8	A	-Use of Proper PPE. -Use of proper tools & tackles.	- On the job training.

* If the hazard has legal control, Risk Level becomes automatically unacceptable irrespective of Risk Score

Thank You !



Just How unsafe are Indian Workplaces

- **Around 125 Workers die every day**
- **50,000 get injured every day**

Why does it happen?

Most of the accidents/injuries are caused by human errors. Industry says, human error accounts for 96% of accidents. The rest takes place due to external conditions and failure of factory equipment.

Why Prevent Accidents and Injuries

Four major reasons for preventing accidents:

Moral — In a civilized society, we are morally bound to treat others as we would like to be treated

Commercial — Major clients closely scrutinize records and a poor record will adversely affect our chances of winning work

Legal — Severe penalties by courts for infringement

Financial — Accidents cost big money

OH & S Practices

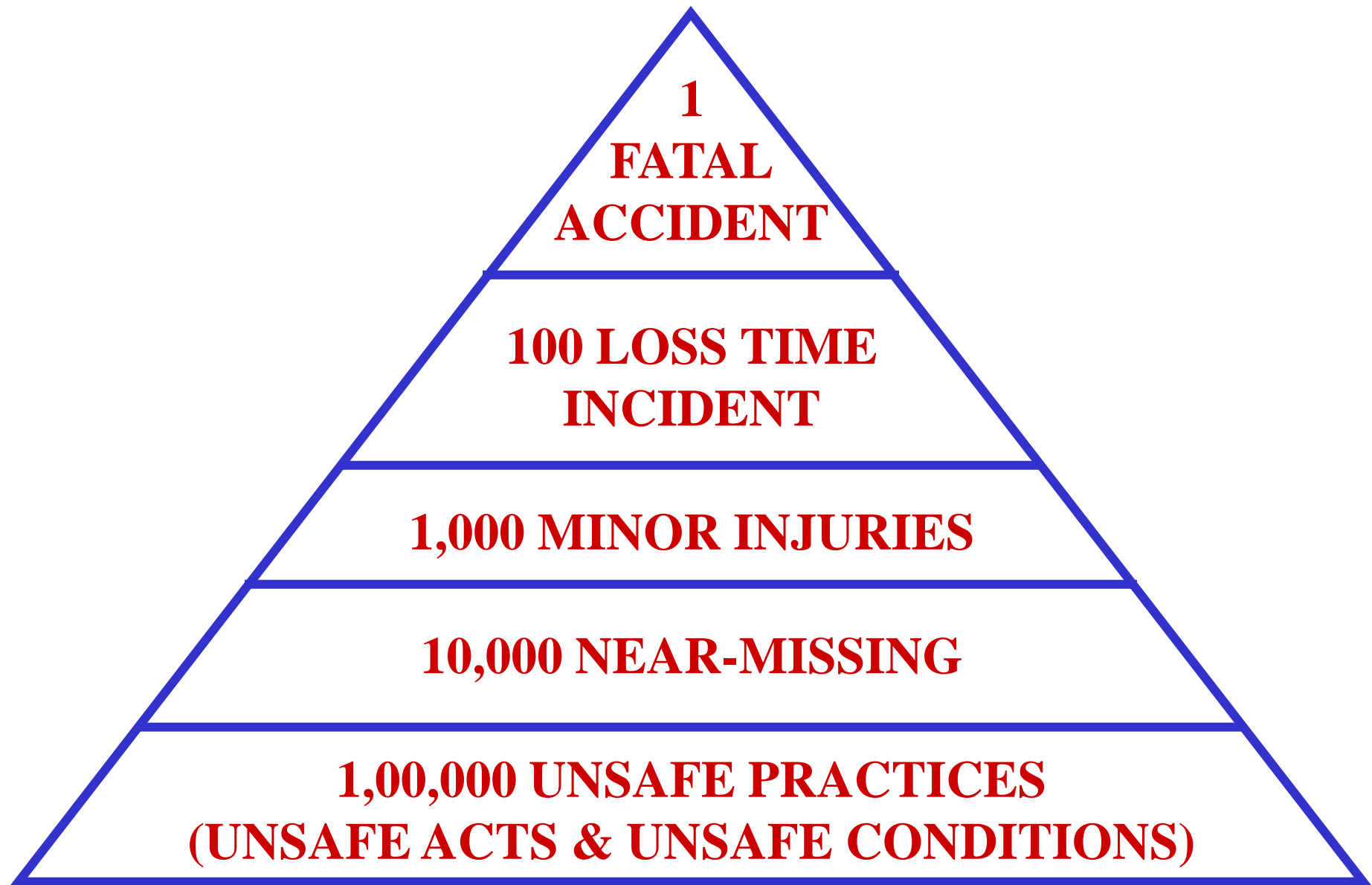
- **Work Permit**
- **House Keeping**
- **Equipment Safety**
- **Fire safety-Fire Fighting Equipments**
- **Gas Cylinder Safety**
- **Transportation of Hazardous Goods**
- **Personal Protective Equipment –Respiratory, Non-respiratory**
- **First Aid**
- **Unsafe Acts, Unsafe Conditions. Unsafe Practices**
- **Incident, Accident , Near Misses**
- **Accident Reporting and Investigation**
- **Risk Analysis**
- **Safety Performance**
- **Occupational Health Hazards-Medical Checkup**

Hazard Categories

Hazard categories include:

- Work Equipment, e.g. entrapment in machinery, equipments without ergonomics consideration.
- Workplace, e.g. uneven floors, poor lighting, high noise level.
- Materials and substances, e.g. dusts, welding fumes.
- Environmental, e.g. temperature extremes, both hot and cold.
- Working practices and procedures, e.g. poor manual handling techniques, unhygienic.

ACCIDENT PYRAMID



Salient Features of OHSAS 18001

- An international management system standard focusing on an organisation OHSMS.
- Non-mandatory in India- Voluntary Standard.
- **Not an "ISO" standard** at this time, however, it is structured to be **compatible with** the ISO 9000 and ISO 14000.
- Applicable to any organisation - all sizes at any locations with any activities.
- Developed by a consortium of 13 European leading international certification bodies and **released in April 1999.**
- **New version OHSAS 18001:2007 released on 1st July, 2007**

Essential Elements of OHSAS 18001

OHSAS 18001 consists of 6 main clauses and 15 sub-clauses for compliance requirement.

- ☐ General Requirements
- ☐ OH&S Policy
- ☐ Planning
- ☐ Implementation and Operation
- ☐ Checking and Corrective Action
- ☐ Management Review

All clauses & sub-clauses to be complied- no exclusion allowed.