

ISEI-SM

(SAFETY MANAGEMENT AT WORKPLACE)

Prepared by

Institution of Safety Engineers (India)

www.iseindia.in

INSTITUTION OF SAFETY ENGINEERS (INDIA)

Welcome

in training

ISEI-SM (SAFETY Mgt. at work place)

on

10/06/2021 To 12/06/2021



MEMBERSHIP SERVICES



JOURNAL PUBLICATION



SAFETY HEALTH ENVIRONMENT RELATED TRAINING & SERVICES







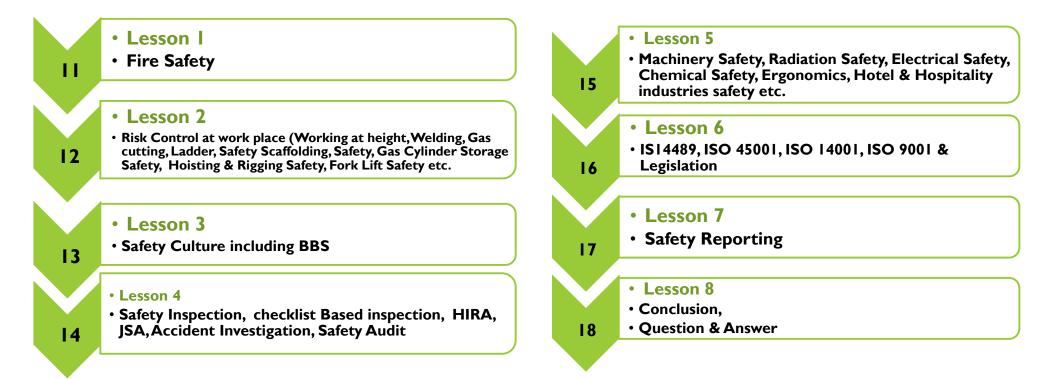


ABOUT US

Institution of Safety Engineers (India) is Non - Profitable organisation set up in year 2012 under ZJEW Trust, Govt. Reg. No. 5240 & Regd. Under Govt. of India and working with objective to prevent accident, protect environment & minimize losses during disaster. Institution of safety engineers (India) imparting safety, health, Environment & quality related training to needy & provide similar services to industries, organization, institution to achieve zero harm.



CONTENT OF COURSE



CONTENT OF COURSE

JOB SAFETY ANALYSIS (JSA)

Job safety Analysis is a technique used to identify hazard to categorise an activity in different parts as Sub- activity & developing safety precaution. It consist four basic steps.

- > Select the job
- > Break the job into each successive steps
- ➤ Identify hazard & potential of accident
- > Develop way to eliminate hazard & prevent accident.

JOB SAFETY ANALYSIS

Name of Contractor/Department :	Date:
Name of Contractor/Department:	Date:

Prepared by:

Activity	Sub-activity	Hazard	Safety precaution

Job Safety Analysis

Location: Activity: Sheeting Job JSA Prepared By:

Job Steps/ Sub Activity		Hazard		Control Measure	Remarks
General	•	Hazard due to unawareness of	•	Barricade the Ground areas	
		safety rule	•	Display Warning notice	
	•	Job related hazard	•	Tool Box Talk will be conducted before starting job by sub-contractor	
	•	Hazard due to failure of lifting		engineer/supervisor	
		appliances, Tools and tackles	•	Trained workmen will perform such job	
	•	Fall of person	•	Unauthorised entry prohibited	
	•	Falling of sheet & other material	•	Depute 1 workman at ground	
	•	Physical Hazard due to poor	•	Check all Lifting appliances, Tools and tackle before use & certified by	
		illumination other factor		competent person	
			•	Use suitable PPE'S as per IS	
			•	Hold the material with lifting appliances, till not fitted properly	
			•	Proper illumination will be maintained	
			•	Don't allow to perform such work during bad weather condition such as	
				rain, high wind etc	
			•	Work permit should be taken before starting job	
Material Handling	•	Failure of lifting appliances	•	Avoid excess projection of materials- Avoid overloading& over	
(Manually &	•	Improper Handling of material		speeding	
Mechanically)	•	Over speeding	•	During loading/ unloading of materials carried closed supervision	
			•	All lifting appliances, tools & tackles must be checked by a competent	
				person before starting loading & unloading work- Keep C.G points of	
				the materials as law as possible	
			•	Use suitable PPE's	

Job Safety Analysis

	• Fall of man, machine &	Barricade the ground areas
	materials	Un-authorised entry prohibited in lifting areas
		,
	Failure of Lifting appliances	Check all lifting arrangement before starting job.
	Cut, bruises	Sheet should be locked properly before lifting
		Use standard quality Lifting appliances as per IS
		Wear suitable PPE'S
Working at height	Fall of person	 Use full body harness attached with life lifeline
	Fall of material	 Rope grab fall arrestor should be used for ascending &
		Descending purpose
		 During Rain and storms don't allow for perform such work
		Medical check up at regular interval
Drilling, Grinding & other	Electrocution	Use standard quality electrical cable
associated activity	Fire	Use three pin plug for electrical connection
	Eye injury	Earthing provided for all electrical portable hand tools
	Hit by object	Overhead electrical cable should be provided
	Burn	Check all Gas cutting set before starting job
	Fire	Gas cutting set must be equipped with NRV/ Flash back
	-	arrestor
		Don't allow to perform hot job near Flammable materials
		Wear suitable PPE's
		VVedi Sultable II LS

ACCIDENT INVESTIGATION & REPORTING

Accident investigation is carried out to find root cause of incident. This help to prevent similar incident in future. Therefore all Incidents investigate by expert team to identify cause and taking corrective and preventive action. Databases of incidents and near misses that have occurred are a useful reference because they give a very clear indication of how incidents can occur.

Reasons to investigate a workplace accident include:

- To find out the cause of accidents and to prevent similar accidents in the future
- ➤ To fulfil legal requirements
- >To determine the cost of an accident
- To determine compliance with applicable safety regulations
- ➤ To process workers' compensation claims

Steps to Accident Investigation:

- > Survey the scene
- > Secure the scene (initiate interim controls)
- > Get help for the injured
- ➤ Collect evidence
- ➤ Analyze data
- > Determine causes (Scientific methods)
- > Prepare Report & Follow up (To eliminate hazards)

Who should do the accident investigating?

Ideally, an investigation would be conducted by experienced person that have experienced in investigative techniques, fully knowledgeable of the work processes, procedures, persons, and industrial relations environment of a particular situation.

In most cases, the supervisor should help investigate the event.

Other members of the team can include:

- ➤ Employees with knowledge of the work
- ➤ Safety officer
- ➤ Health and safety committee
- ➤ Union representative, if applicable
- Employees with experience in investigations
- ➤"Outside" expert
- > Representative from local government

What should be looked at as the cause of an accident?

- > Material,
- > Person,
- ➤ Task,
- work location
- ➤ Work Environment.

ACCIDENT REPORT FORMAT SAMPLE

INCIDENT INVESTIGATION REPORT					
Type of Incident: (Please fill the box)					
Near Miss : First Aid Injury:	Lost Time Injury: Other:				
Brief Details:					
Name of Injured Person :	Age:				
Designation:	Contractor / Department:				
Date and Time:					
Nature of Injury:	Location:				
Description of Incident:					
Causes of Incident:					
Direct Cause:					
Indirect Cause:					
Corrective / Preventive Action:					

HAZARD IDENTIFICATION & RISK ASSESSMENT TECHNIQUES (HIRA)

Hazard identification & Risk assessment Techniques (HIRA) is a Technique used to identify hazard, access Risk and viewing that risk is tolerable or not as per organisation policy.

HAZARD IDENTIFICATION & RISK ASSESSMENT TECHNIQUES (HIRA)

Terminology

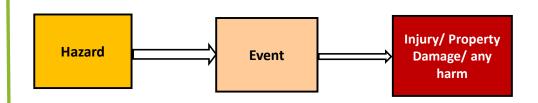
Risk: Combination of likelihood & consequences of specific hazardous event occurring.

Risk Assessment: The overall process of estimating the magnitude of risk and deciding whether the risk is tolerable.

Tolerable Risk: Risk that has been reduced to a level that can be endured by the organization having regards to its legal obligations and its own OH&S Policy.

Classification & Potential Sources of Hazards

- ➤ Mechanical Sharp points & edges, overload.
- > Electrical Insulation damaged or cover broken
- > Fire Poor housekeeping, Hot job near Flammable material
- ➤ Biological Exposed, airborne/blood borne
- > Chemical Expose to carcinogens chemical
- > Ergonomics Expose to unnatural postures
- > Psychological- Stress or violent at workplace.



RISK EVALUATION METHOD

- **I.Classify work activities** prepare a list of work activities covering plant, raw materials/ chemicals handled, premises, people and procedures, and gather information about them;
- **2.Identify hazards** identify all hazards relating to each work activity.

 Consider who might be harmed and how; what might be damaged and how;
- **3.Determine risk** make a subjective estimate of risk associated with each hazard assuming that planned or existing controls are in place. Assessors should also consider the effectiveness of the controls and the consequences of their failure;
- **4.Decide if' risk is tolerable** judge whether planned or existing OH&S precautions (if any) are sufficient to keep the hazard under control and meet legal requirements;

5. Prepare risk control action

HAZARD IDENTIFICATION METHODS:

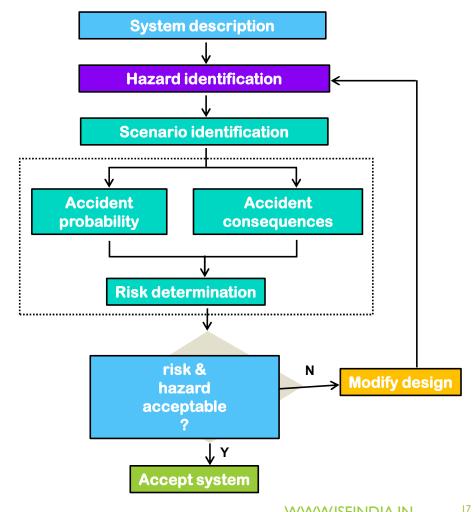
- Process hazard checklist
- Hazard survey
- Safety review

RISK ASSESSMENT:

- What can go wrong & how?
- What are the chances?
- Consequences?

EXTREMES:

- Low probability
- Minimal consequences



Risk Rating Score

Likelihood that hazardous event will occur				
1	Very unlikely			
2	Unlikely			
3	Fairly likely			
4	Likely			
5	Very Likely			

Consec	Consequence of hazardous event				
I	insignificant – no injury				
2	minor – minor injuries needing first aid				
3	moderate – up to three days' absence				
4	major – more than seven days' absence				
5	catastrophic – death				

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Action Level Table					
Risk rating	Action				
17-25	Unacceptable	stop activity and take immediate action			
10-16	Tolerable	improve within specified timescale			
5-9	Adequate	look to improve at next review or if there is a significant change			
1–4	Acceptable	No further action but ensure controls are maintained and reviewed			

RISK ASSESSMENT PERFORMA

Name of Depart./Contractor:

Job No.:

Date:

Activity	Hazard	Who might be harmed	Existing control measure			Additional Control Measure	Residu	ual risk	•	Remarks	
				L	U	R		L	С	R	

Organizations should prepare a simple Performa that can be used to record the findings of an assessment, typically covering:

- ➤ Work activity;
- ➤ Hazard(s);
- ➤ Controls in place;
- ➤ Personnel at risk;
- ➤ Likelihood of harm;

- > Severity of harm;
- Risk level;
- Residual Risk
- Remarks and
- Administrative details, for example, name of assessor, date, etc.

INTRODUCTION

In industries Several Techniques used to Prevent Accident, Protect environment & minimise losses during disaster, in which one techniques is Safety Audit

Safety Audit is independent examination of Organization

During Safety Audit, Auditor Physical Visit to site and review to existing system.

Safety Audit is proactive approach to identify
Organisation deficiency and eliminating/correcting
them.

Safety Audit is detailed examination of effectiveness, efficiency & reliability of organisation Safety performance.

Safety Audit is effective method used to seek opportunities to improve organization Safety Performance

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PURPOSE OF SAFETY AUDIT

To check & verify Safety system of organization that are Fulfilling or meeting legal requirements or not

Examine existing safety system of organization to know deficiency & work to improve safety system

To Identify potential sources of harm, See their risk & recommending to organization to control such risk

To determine Non-conformity or gaps and Seek opportunities to improve organization Safety performance

STATUTORY PROVISION OF SAFETY AUDIT

☐ The Occupational Safety, Health & Working Condition Code 2020, Section 37, Third Party Audit & Certification

☐ Manufacturer Storage, Import of Hazardous Chemical Rules 1989, Rule 10, SAFETY REPORTS I [AND SAFETY AUDIT REPORTS]

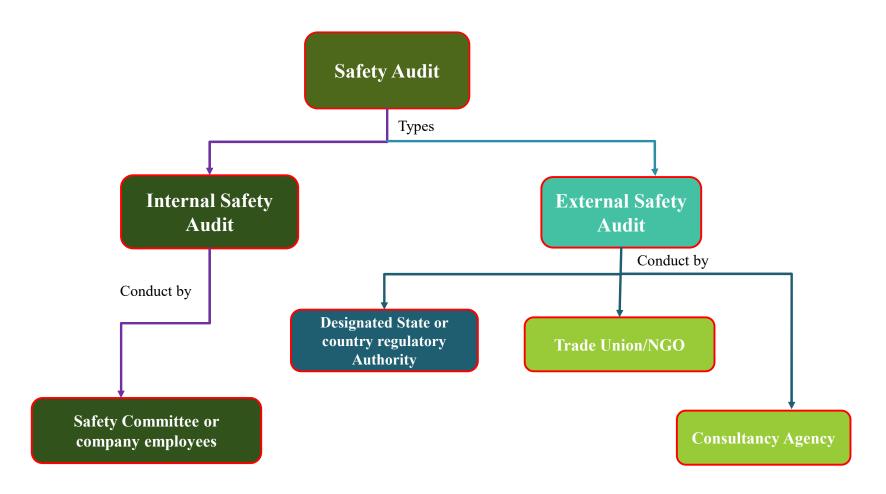
The occupier shall update the safety audit report once a year by conducting a fresh safety audit and forward a copy

- Respective State rules such as Maharashtra Factories (Safety Audit) Rules, 2014
 Published vide Notification No. FAC. 2012/C.R.278/Lab-4, dated 24.2.2014
- ☐ The IS 14489:1998
 - 4.1.2, Audit Frequency, Conduct Internal Safety Audit in a one Year & External Safety Audit in a Two Year

ADVANTAGE OF DOING SAFETY AUDIT

□ They Highlight Potential Problem
 □ The increase employee awareness
 □ They enhance your company Credential
 □ They save your money
 □ They may be viewed by regulatory agency
 □ They will offer Knowledge & Validation
 □ They will be offer Objectivity
 □ They offer greater result accuracy
 □ They can Lower your business impacts

TYPES OF SAFETY AUDIT



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Internal Safety Audit V.S External Audit

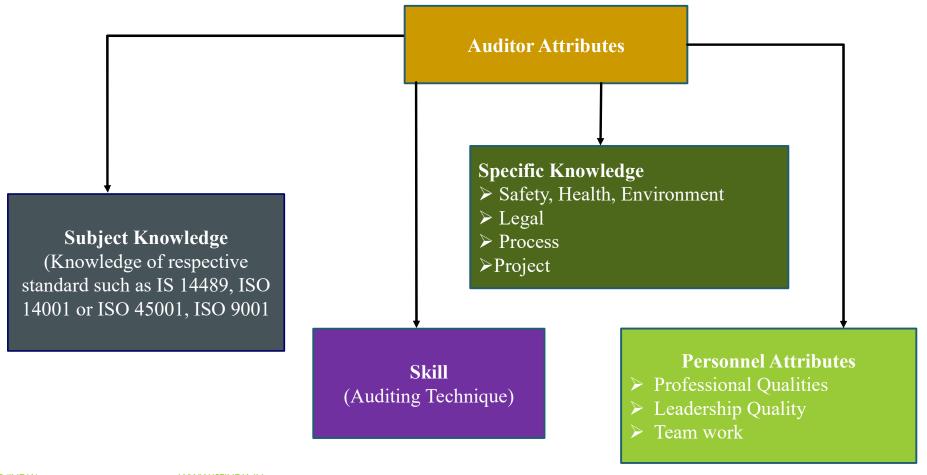
Internal Safety Audit

- ☐ More Effective Management.
- ☐ On going Review.
- ☐ Performances of Staff Improve.
- ☐ Ensures Optimum Use of Resources.
- ☐ Shortage of Qualified Staff.
- □Ignorance of Management.
- ☐ No or Less expensive
- ☐ Auditor know About Organisation
- ☐ Less independency of Auditor

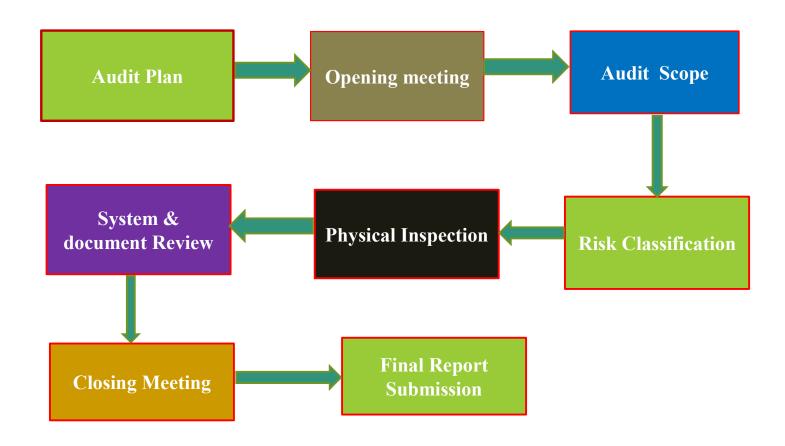
External Safety Audit

- ☐ An external audit improves internal systems and
 - controls. Auditors do not just focus on the numbers
 - but will gain an understanding of the businesses
 - overall systems and controls environment.
- ☐ An external audit provides credibility.
- ☐ An external audit gives shareholders confidence.
- ☐ More expensive
- ☐ Independency of Auditor
- ☐ Time consuming

AUDITOR ATTRIBUTES



AUDIT PROCEDURE



ISEI-AUDIT PROCEDURE



Auditor will Submit Draft Report to Customer and in case of Acceptance, final Audit Report will be submitted

TYPES OF RECORDS TO BE EXAMINED DURING THE SAFETY AUDIT

- ➤ Safety policy
- ➤ Safety organization chart
- ➤ Competency & Skill of Safety Personnel
- > Record of defined Role & Responsibilities
- ➤ Training records
- > Record of plant/Project safety inspections
- >Accident investigation reports including Near Miss
- ➤ Accidents and dangerous occurrences statistics and analysis
- ➤ Record of tests and examinations of equipment and structures as per statutes
- ➤ Safe operating procedures for various operations
- ➤ Work Permit Program & Record of work permits
- > Record of monitoring of flammable and explosives substances at work place

- ➤ Medical records of employees
- ➤ Maintenance and testing records of fire detection and firefighting equipment
- ➤ Records of industrial hygiene surveys (noise, ventilation and levels, illumination levels, airborne and toxic substances, explosive gases)
- ➤ Material safety data sheets
- ➤ Record of Lock out/ Tag out System
- Safety Manuals, Safety Management Plan (SMP) & Tool

 Box Talk Manual
- ➤ Role & Responsibility Clear Defined and its Record
- > Motivational Scheme Program & its Record
- ➤ Record of HIRA & JSA
- ➤ Environmental Clearance from CPCB/CPCB if Applicable

TYPES OF RECORDS TO BE EXAMINED DURING THE SAFETY AUDIT

- ➤On-site emergency plans and record of Mock

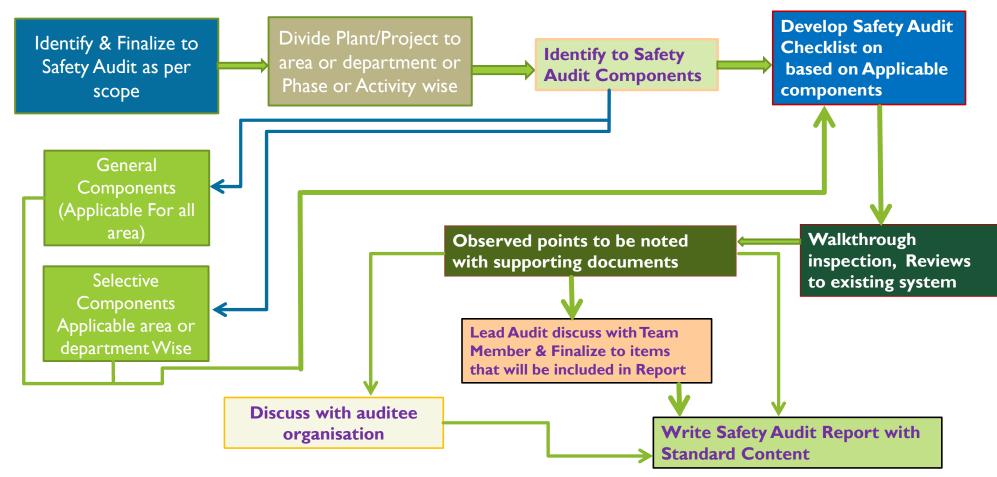
 Drills
- ➤ MOU with outside agency or organization to tackle emergency
- ➤ Records of effluent discharges to the environment
- ➤ Housekeeping inspection records
- ➤ Minutes of safety committee meetings
- Approval of layouts; and other approval from statutory authorities
- ➤ Records of any modifications carried out in plant or process
- ➤ Maintenance procedure records

- ➤ Shut down maintenance procedures
- In service inspection manuals, records including that of material handling
- ➤ Safety budget
- Inspection books and other statutory records
- ➤ Records of previous audits
- >Safety in transportation of hazardous substances
- ▶PPE's Issued Register and Inspection Record
- ➤ Record of Minutes of Meeting & their compliance status
- Existing welfare Amenities
- Safety Reporting system & record of past year report
- ➤ Govt. Permission Letter to Operate Plant or Project site

TYPES OF RECORDS TO BE EXAMINED DURING THE SAFETY AUDIT

- ➤ Waste Management Plan, Record of Waste Generation & disposal
- > Calibration and testing records
- ➤ Motivational Scheme Program & Its Record
- ➤ Record of workplace Environmental monitoring Report etc.

AUDITOR CAN CONDUCT EFFECTIVE AUDIT



POINTS TO BE REMEMBER DURING AUDIT

- > Always Take support with Auditee or respective area in-charge to know details about area or require items
- > Conduct walkthrough with Audit checklist
- > Respective Legislation should be linked with Checklist
- > Check all components of Safety Audit
- > Collect evidence of observation
- > Always observe to conformance as well as Non-conformance
- Conduct interview with site/ department workmen or employees
- > Write observation clearly with location/ Section wise and equipments name
- > As Per observation, evaluate to potential impacts and write it in note book
- > At end of Audit share all observed items with Lead Auditor

Code of Practices of Occupational Safety & Health Audit (IS 14489:1998)

Clause Description

- 1) Scope
- 2) Definition
- 3) Occupational Safety & Health Audit Objective, Goal & Responsibility
- 4) Occupational Safety & Health Audit Methodology
- 5) Occupational Safety & Health Audit Completion
- 6) Action for Implementation for Occupational Safety & Health Audit

Annexure A: Elements of occupational safety and health system (OS&H)

Annexure B: Types of records to be examined during the safety audit

Annexure C: Safety Audit Questionnaire

Code of Practices of Occupational Safety & Health Audit (IS 14489:1998)

Clause 3: Occupational Safety & Health Audit Objective, Goal & Responsibility

3.1 : Occupational Safety & Health Audit Objective

3.2 : Occupational Safety & Health Audit Goal

3.3 : Occupational Safety & Health Audit Responsibility

Clause 4: Occupational Safety & Health Audit Methodology

- 4.1 Initiating of Occupational Safety & Health Audit
- 4.2 Preparation of Occupational Safety & Health Audit
- 4.3 Execution of Occupational Safety & Health Audit
- 4.4 Occupational Safety & Health Audit Documents

Code of Practices of Occupational Safety & Health Audit (IS 14489:1998)

Clause 05: Occupational Safety & Health Audit Completion

Clause 06: Action for Implementation for Occupational Safety & Health Audit

COMPARISON BETWEEN ISO 45001, ISO 9001 & ISO 14001

ISO 450001:2018	ISO 9001:2015	ISO 14001:2015
I. Scope	I. Scope	I. Scope
2. Normative references	2. Normative references	2. Normative references
3. Terms and definitions	3. Terms and definitions	3. Terms and definitions
4. Context of the organization	4. Context of the organization	4. Context of the organization
5. Leadership	5. Leadership	5. Leadership
6. Planning	6. Planning	6. Planning
7. Support	7. Support	7. Support
8. Operation	8. Operation	8. Operation
9. Performance evaluation	9. Performance evaluation	9. Performance evaluation
10. Improvement	10. Improvement	10. Improvement

ISO 45001:2018	OHSAS 18001:2007
1 SCOPE	1 SCOPE
2 NORMATIVE REFERENCES	2 REFERENCE PUBLICATIONS
3 TERMS AND DEFINITIONS	3 TERMS AND DEFINITIONS
4 CONTEXT OF THE ORGANIZATION (Title)	
4.1 Understanding the organization & its context	Corresponding Clause does not exist
4.2 Understanding the needs and expectations of interested parties	
4.3 Determining the scope of the OH & S management system	4.1 General requirements, paragraph-2
4.4 OH & S management system	4.1 General requirements, paragraph-1
5 LEADERSHIP (Title)	Corresponding Clause does not exist
5.1 Leadership and commitment	4.4.1 Resources, roles, responsibility, accountability and authority, paragraph-1
5.2 OH & S policy, paragraph-1	4.2 OH & C maliav
5.2 OH & S policy, paragraph-2	4.2 OH&S policy
5.3 Organizational roles, responsibilities and authorities	4.4.1 Resources, roles, responsibility, accountability and authority, paragraph-2.b & 3 to 6
5.4 Consultation and participation of workers	4.4.3.2 Participation and consultation

6 PLANNING (Title)	4.3 PLANNING (Title)			
6.1 Actions to address risks & opportunities (Title)	Corresponding Clause does not exist			
6.1.1 General	Corresponding Clause does not exist			
6.1.2 Hazard Identification and assessment of risks and	4.3.1 Hazard identification, risk assessment, and determining controls,			
opportunities	paragraph-1 part, 2 to 4 & 7			
6.1.3 Determination of legal requirements and other requirements	4.3.2 Legal and other requirements			
6.1.4 Planning action	4.3.1 Hazard identification, risk assessment, and determining controls, paragraph-1 part, 5 & 6			
6.2 OH & S objectives and planning to achieve them (Title)	Corresponding Clause does not exist			
6.2.1 OH & S objectives	4.3.3 Objectives and programme(s), paragraph-1 to 3			
6.2.2 Planning actions to achieve OH & S objectives	3. Objectives and programme(s), paragraph-4 & 5			
7 SUPPORT (Title)	4.4 IMPLEMENTATION AND OPERATION (Title)			
7.1 Resources	4.4.1 Resources, roles, responsibility, accountability and authority, paragraph-2.a			
7.2 Competence	4.4.2 Competence, training & awareness, paragraph-1 & 2			
7.3 Awareness	4.4.2 Competence, training & awareness, paragraph-3			
7.4 Communication (Title)	4.4.3 Communication, participation & consultation (Title)			
7.4.1 General	4.4.3.1 Communication			
7.4.2 Internal Communication				
7.4.3 External Communication	Corresponding Clause does not exist			
7.5 Documented information (Title)				

ISO 45001:2018	OHSAS 18001:2007
7.5.1 General	4.4.4 Documentation
7.5.2 Creating and updating	4.4.5 Control of documents, paragraph-2 part
	4.5.4 Control of records, paragraph-2 part
7.5.3 Control of documented information, paragraph-1	4.4.5 Control of documents, paragraph-1
	4.5.4 Control of records, paragraph-1
7.5.3 Control of documented information, paragraph-2 & 3	4.4.5 Control of documents, paragraph-2 part
	4.5.4 Control of records, paragraph-2 part & 3
8 OPERATION (Title)	4.4 IMPLEMENTATION AND OPERATION (Title)
8.1 Operational planning and control	4.4.6 Operational control
8.2 Emergency preparedness and response	4.4.7 Emergency preparedness and response
9 PERFORMANCE EVALUATION (Title)	4.5 CHECKING (Title)
9.1 Monitoring, measuring, analysis and evaluation (Title)	Corresponding Clause does not exist
9.1.1 General, paragraph-2, 4, 6	4.5.1 Performance measurement and monitoring
9.1.1 General, paragraph-1, 3, 5	
9.1.2 Evaluation of compliance	4.5.2 Evaluation of compliance
9.2 Internal audit (Title)	Corresponding Clause does not exist

ISO 45001:2018	OHSAS 18001:2007
9.2.1 General	4.5.5 Internal audit, paragraph-1
9.2.2 Internal audit programme	4.5.5 Internal audit, paragraph-2 to 4
9.3 Management review, paragraph-1	4.6 Management review, paragraph-1
9.3 Management review, paragraph-2	4.6 Management review, paragraph-2
9.3 Management review, paragraph-3	4.6 Management review, paragraph-3
Corresponding Clause does not exist	4.6 Management review, paragraph-4
10 IMPROVEMENT (Title)	Corresponding Clause does not exist
10.1 General	
Corresponding Clause does not exist	4.5.3 Incident investigation, NC, CA & PA (Title)
10.2 Incident, Nonconformity & corrective action, paragraph-1, 2	4.5.3.1 Incident investigation, paragraph-1 to 3
	4.5.3.2 Nonconformity, CA and PA
10.2 Incident, Nonconformity & corrective action, paragraph-3	4.5.3.1 Incident investigation, paragraph-4
10.3 Continual improvement	Corresponding Clause does not exist

CONTENT OF SAFETY AUDIT REPORT

Cover Letter & Foreword

- 1) Executive Summary
- 2) Acknowledgement
- Introduction (Project / plant Description overview & Achievement if any)
- 3) Purpose of Safety Audit
- 4) Methodology (method and their steps that is used to conduct safety Audit)
- 5) Findings

- 5.1 Finding as per Applicable Elements
- 5.2 Finding as per checklist
- 6) Recommendation (As per Findings to link with respective rules, standards & Codes)
- 7) Conclusion
- 8) Annexure
- Chart Results Drawing
- Supporting documents EHS activity Photograph
- 9) References
- 10) Abbreviation

POINTS TO BE REMEMBER DURING REPORT WRITING

- > Write Safety Audit Report in positive manner
- ➤ Write down Auditor Qualification, Experience summary
- > Write brief about Plant or Project in introduction section
- > Recommendation should be show positive impacts if comply
- Risk Should be Categories as per Observation to include its Potential impacts in report
- ➤ Write to observed N.C with Priority Level of Compliance
- ➤ Recommendation of Observation should be Link with Respective regulation
- > Always Use Graphs, Charts, Table to increase effectiveness of report
- > Always add to observation with Supporting Documents in report
- ➤ Write down Positive observation (Conformance) also with Non-Conformance
- > Always use Standard Content during Report writing
- Always use suitable and positive word in each sentence during content writing

QUESTION & ANSWER



References:

- ■ISEI Manual, IS 18001, IS 14489
- ISO 45001, ISO 14001, ISO 9001





THANK YOU!

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CALL +91-6266474225, +91-8720831773

