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IJISEI

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International Journal of Institution of Safety Engineers (India) is Published by Zeenat Jhan Educational and Welfare Trust (ZJEWT) in association with its unit Institution of Safety Engineers (India). ZJEWT is Non-Profitable organisation established in year 2012, Govt. Reg. No. 5240 and publishing online Journal since 2018 on name of International Journal of Institution of Safety Engineers (India). Journal publishing in four Issue in every year i.e one issue in every three month. International Journal of Institution of Safety Engineers (India) is also known as IJISEI in short form. Objective to publish this Journal is to share information, knowledge among researcher, Professional and organization. Such Journal helps to grow their professional carrier, used for research purpose. Safety, Health & Environment related Journal is very helpful for professional, Institutional, organizational to learn and implement effective system to Prevent Accident, Protect environment and minimize losses during Disaster.

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Institution of Safety Engineers (India)

“Aim to prevent Accident, Protect Environment & Minimises Losses during disaster”

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This Issue Journal Include:

- IJISEI-V4-I3 ¹ An adequacy approach study for calculating the amount of water to be stored in the pharmaceutical industry for tackling the emergency situation like fire
- IJISEI-V4-I3 ² case study of incident due to power tripping from incomer
- IJISEI-V4-I3 ³Safety Audit in Organisation



Safety Activity Conducted during July-Sept. 2021

WEBINAR ON PROCESS SAFETY MANAGEMENT
 Conducted by **INSTITUTION OF SAFETY ENGINEERS (INDIA)**
 on **20-July-2021, at 3:00 PM to 4:15 PM (India)**

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Journal Publication **Safety, Health, Environment Related Training & Services** **Membership Service**

REPORT OF WEBINAR

	<p>SPEAKER</p> <p>Mr. V. Narsimhan: Expert in Process Safety Management and Chemical Engineering & Senior Member of Institution of Safety Engineers (India)</p> <p>Tamanna Afroz : B.Tech, FDIS, Co-ordinator, Institution of Safety Engineers (India) Member ZJEW Trust Email id: info@iseindia.in</p>
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PROCESS SAFETY MANAGEMENT

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 On 8 August 2021, Time 5:30 PM – 6:30 PM (India)

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REPORT OF PROGRAM

	<p>SPEAKER</p> <p>Ms. Sanya P M.K. (Yoga) Yoga Teacher and Evaluator Approval By Anand Masnady, OOL</p> <p>Ms. Tamanna Afroz, B.Tech, FDIS, Dy. Co-ordinator Institution of Safety Engineers (India) & Member ZJEW Trust Email id: info@iseindia.in</p>
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HOLISTIC WELLNESS THROUGH YOGA

INSTITUTION OF SAFETY ENGINEERS (INDIA)
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AN ADEQUACY APPROACH STUDY FOR CALCULATING THE AMOUNT OF WATER TO BE STORED IN THE PHARMACEUTICAL INDUSTRY FOR TACKLING THE EMERGENCY SITUATION LIKE FIRE

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Abstract

Considering the hazardous nature in the pharmaceutical industry (API), a study has been conducted to calculate the amount of water to be stored in the industry to tackle the emergency situation like fire, where highly toxic, hazardous and flammable materials are stored and used in the manufacturing process as per the instructions given in the Batch Management Record (BMR). Based on the water load calculated, we have ascertained scientific approach to know the quantity of the water required in case of the fire emergency, which has resulted in an adequacy approach

Key words: Chemical industry, API, BMR, Hazardous and flammable materials and Fire Emergency

1. Introduction

Fire is the combustion process of burning, its components are oxygen, fuel and heat (Robertson (1984)). It is a chemical reaction, initiated by the sources of heat energy with the flammable chemical substance at a particular temperature in presence of sufficient oxygen. The vapours present in the working environment in the API industry, which are flammable and hazardous in nature. The heat source and the sufficient fuel, in the form of chemicals in presence of sufficient oxygen, which initiates the chain reaction process, which is known as fire ((David M Wharry & Ronald Hist (1992), Jain (2010), Sesha Prakash (2013) and Gupta. (2009)). The fire chain reaction happens due to the chemicals used or the combustible dust or the combustible substances or the different vapour mixtures, which will lead to the fire accident when all the three components of fire are present in the equal proportion. This continuous stage of fire, where the chain reaction is continued is called burning. During this burning stage, the process will emit energies. The energies will be in the form of heat, light and sound. The burning extinguishment will happen when the sources of heat energy is absent or if the heat energy is not having required level of heat capability to continue the reaction in the form of fire, where the combustible chemical substances is absent or the oxygen supply is less to support the reaction of the fire to continue. The heat sources are available in the buildings comes from the electrical appliances, gas appliances, chemical substances both in the form of the liquid and



solid, which are used in the process to achieve the desired reaction. The mechanical equipment's, which are used in the API industry during the various processes in order to make the finished goods,

i.e., reactors, centrifuges, driers, multi mill, jet mill and shifters also generate heat during the

running operation. The combustible fuel substance is available in the buildings are in the form of combustible materials (every day activities required chemical materials which are used in the process to enhance the reaction and achieve the desired results, which is in the form of a finished goods). These combustible materials of various types with different quantity will be kept in different location based on the requirement of the process, although major chemical substances are stored in the raw material and procurement materials storage area, these materials are used in the intermediate blocks, dryer blocks and finished goods, where different activity is carried out in the API industry by using various chemicals and solvents, where there are higher chances that the chemical substance can catch fire in case of sufficient safety measures are not followed during the storage, handling of the chemicals in the process.

In an increasing demand over the use of chemicals in the manufacturing process, which are used by the human beings have been resulted in handling the risky situation and tackling the emergency situation like fire. The water supply needed to tackle the emergency is based on the economic supply of water (Aashish Yadav and Prof. Praveen patel (2014)). In the past times the water supply is required for the development of the cities, towns and villages across the world but considering the emerging modern API chemical industries across the globe, the fire protection of their resources in the factory has to play a vital role in tackling the emergency situation. However, considering the present situation it was found that there is large quantity of water existed in the globe in the form of perennial and non-perennial rivers, ponds, lentic and lotic systems, which paves a way of supplying the water to tackle the fire in the industry. By giving the importance to fire tackling situation from the late nineteenth century, this has resulted in additional cost of water works to be provided for firefighting, which has resulted in the inequalities among the industries for the additional cost to be laid for providing the water for tackling the emergency situation like fire. (Comeau and Duval (1998), Covey (1999) and Damon (1993)) demonstrated the individual waterworks disparities and their problem and presented their findings in the various technical papers, conferences, journals and the engineering society meetings. It has been initiated and recommended to have an environment sustainability approach for tackling the fire by saving the rain water in the factory premises, by Channeling and collecting the water in a manmade pond, which a novel divine approach. It is always necessary that an organization should know the adequacy water to be stored in the industry to tackle the emergency situation like fire



2. Methodology used for Fire Load Calculations

As per the Rajasthan Factories Rules (GFR) 1963, Rule 63 (12) states that the every factory adequate provision of water-supply for firefighting shall be made and where the amount of adequacy of water, which is recommended is 550 liters/minute or which is obtained by calculating from the below formula. Power driven transfer pump with the sufficient capacity has to be installed.

Water required in liters per minute can be calculated by using the formula $(A + B + C + D) / 20$, the below table gives a brief description of the four categories.

In the above formula –

Tabel.1 – Brief description of the various categories (A, B, C & D) in the different area as per GFR 1963	
A	The total area, which are in the form of a square meters for all floors including galleries in all buildings of the factory
B	The total area in square meters of all floors and galleries including open spaces in which combustible materials are handled or stored
C	The total area in square meters of all floors over 15 meters above ground level
	The total area in square meters of all floors of buildings other than those of fire-resisting construction provided fire-resisting constructions of various floors is so certified by any Fire Association or Fire Insurance Company

Provided that, in areas where the fire risk involved does not require use of water such areas under A, B, C or D may, for the purpose of calculation, be halved: Provided further that, where the areas under A, B, C or D are protected by permanent automatic fire fighting installations approved by any Fire Association or Fire Insurance Company.

Results and discussion - During the study, each area has been measured in the factory as per the methodology recommended by the GFR 1963

Table 2. Fire Load Calculations

S No	Name of Building/ Area	Area (m ²)	A	B	C	D
1	Guard room	9	9	-	-	9
2	Transformer Area	32.3	0.0	32.3	-	0.0
3	Office building	24.6	24.6	24.6	-	24.6
4	Stairs	12.3	12.3	12.3	-	12.3
5	Store room GF	22.6	22.6	22.6	-	22.6
6	Lab 1 GF	20.8	20.8	20.8	-	20.8
7	Lab 2 GF	20.8	20.8	20.8	-	20.8
8	Electrical MCC room	45.5	45.5	0	-	45.5
9	Toilet	7.4	7.4	0	-	7.4
10	Thermic Fluid heater	11.2	11.2	11.2	-	11.2
11	Boiler	13	13	13	-	13
12	Chimney	7.6	-	-	-	-
13	Cooling tower CT2	16.0	-	-	-	-
14	DG Sets	45.5	45.5	45.5	-	45.5
15	DM water plant and utility	10.1	10.1	0.0	-	10.1
16	I Floor office area	17.2	17.2	17.2	-	17.2
17	Document store 1st floor	8.2	8.2	8.2	-	8.2
18	First floor office (conference room)	24.6	24.6	24.6	-	24.6
19	First floor lab	23	23	23	-	23
20	First floor guest room	19.8	19.8	19.8	-	19.8
21	First floor Barcode room	21.4	21.4	21.4	-	21.4
22	First floor Engg stores	6.2	6.2	6.2	-	6.2
23	Hazardous Waste Room	9	9	9	-	9
24	Metering room	15	15	0	-	15
25	Old transformer	7.5	7.5	7.5	-	7.5
26	VAM UG Tank farm	96.6	96.6	96.6	-	96.6
27	Fire Pump House	33.9	7.4	33.9	-	7.4
28	RM & PM stores (G+1)	245.0	245.0	245.0	-	245.0
29	Compressor room	10.9	10.9	0	-	10.9
30	Packing area (G+1)	728	728	728	-	728
31	Manufacturing Plants (G+1)	802	802	802	-	802
Total Area (m²)			2275.6	2245.5	-	2275.6

Table – 2 (a) Fire Load Calculations - area (m²) with their different categories as per GFR

1963 rules

Category	Description	Total Area in m ²
A	The total area is square meters of all floors including galleries in all buildings of the factory	2275.6
B	The total area in square meters of all floors and galleries including open spaces in which combustible materials are handled or stored	2245.5
C	The total area in square meters of all floors over 15 meters above ground level	NIL
D	The total area in square meters of all floors of all building other than those of fire resisting construction	2275.6

Water required for firefighting in Lit/min can be calculated $(A+B+C+D)/20$ (Table. 2(a), which is equal to 339.8 Lit /minute $((0.33 \text{ m}^3 / \text{minute}), (20.39 \text{ m}^3/\text{hr}))$. Water requirement is less than 550 Lit/ minute therefore power-driven trailer pump is not required.

From the above Tabel. 2, it has been observed that the highest area is the manufacturing area (802 m²), followed by RM and PM stores (245 m²) and lowest area being engineering stores (6.2 m²), which is located at the first floor. The manufacturing is the area, where the highest hazardous materials are used in the process for manufacturing of the Intermediates and finished goods, while raw materials stores where the highest toxic and fire hazard materials are stored in the respective allocated places. The engineering stores, where least hazardous materials are stored. Considering the above Tabel.2, the total area of various categories of A (2275.6 m²), B (2245.5 m²) and D (2275.6 m²), the category C, where total area in square meters of all floors over 15 meters above ground level was nil.

By considering the total water required for firefighting in Lit/min = $(A+B+C+D)/20$, which is 339.8 Lit /minute $(20.39 \text{ m}^3/\text{hr})$ (Tabel.2(a)). As per GFR 1963 Rule 66A, the water required for fighting the fire to be stored for 100 minutes for fighting the fire to be calculated, so we can calculate the fire water required by using the formula $((A+B+C+D)/20) \times 100$ minutes, so water required to be stored for fighting the fire is 33980 Lit (**33.9 m³**). We do have 40 m³ of fire water stored in the storage pond, which is sufficient to fight the fire for 100 minutes.

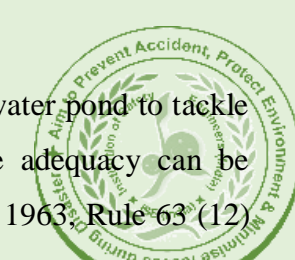
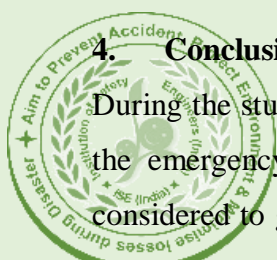


3. Discussion

Many of the studies and approaches for the adequacy for the storage of the water in the pond has been published in the international journals although there is very less information, which is published in the national level for knowing the water load to tackle the fire emergency, especially with respect to the chemical industry such as API, where more hazardous substances like chemicals and solvents are stored and used in the working environment, taking the above scenario, in case of any eventuality in the API industry (like fire accident, which are caused due to various sources such as static electricity, exothermic reaction, accumulation of dust particle, solvent vapours and electrical short circuit) we do require sufficient water to be stored in the water storage pond in order to fight the emergency situation like fire for which water load calculation playing a vital role in the API industry, where hazardous substances are stored, which may cause fire due to the unsafe conditions and acts. Many of the international authors have published their work with respect to the fire load and they have used different type of approaches for calculating the fire load, which are used globally. Hadjisophocleous & Fu (2004) has reported that many of the international universities such as Lund University has developed two fire risk assessment approaches, standard Lund QRA (Quantitative Risk Assessment), and extended QRA. The standard QRA is most frequently used in describing risk in the chemical process industries. The quantitative fire risk assessment method, safety or risk can be evaluated either by comparing the existing design area with accepted solutions or with specified tolerable levels of risk. The former is a relative risk assessment method (QRA), is assessed in this paper. Considering the present study, which has been resulted in an adequacy quantity of water, which has been found in the fire water storage pond. It is often argued and said the solutions of the respective design, which are to be in the acceptable level, when we compared with the incorporated safety level (Fischer (2014) and Lundin (2005), It is often known as a benchmark for 'adequate safety'. Then, the adequacy is an 'innovative' or 'traditional' approach has been demonstrated by comparing its safety level associated with the various categories as per the guide lines given in the GFR rules 1963, which is recommended by the inspector of factories, this is a common procedure to justify deviations from prescriptive methodology, although it will be varied globally (Grubits (2010), Fischer(2014) and Wu et al., (2014)), which are significant in obtaining the safety levels, allowing for an easier acceptance by the authorities and reducing the required complexity in the input data for calculating the water load (BSI (2003)). The adequacy approach, which helps the Environment, health and safety professionals to tackle the emergency situation like fire by storing the sufficient water in the water storage pond.

4. Conclusion

During the study it was observed that we do have adequate water stored in the water pond to tackle the emergency situation arises in the API industry. It is concluded that the adequacy can be considered to give a robust indication of the acceptability of a design, The GFR 1963, Rule 63 (12)





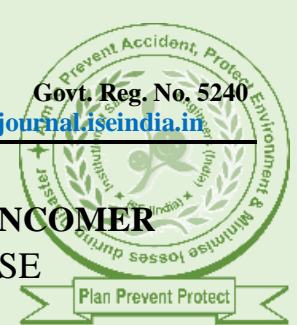
recommended guidelines has helped us do an adequacy study for knowing the water load required to tackle the emergency situation. Although we expect all the safety precautions will be taken by the factory people to avert fire accident during the storing, movement of chemicals and its usage during

the different kind of operations, let us finally say “Let us be safe, obey the safety guide lines. All the employees and contractors has been trained to tackle the emergency situation like fire in an industry”.

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CASE STUDY OF INCIDENT DUE TO POWER TRIPPING FROM INCOMER

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ABSTRACT

Case study is procedure to describe details of incident to find existed gaps that was cause of result of accident. Case study of This Incident has been carried out to know the factor that created Incident. To Know Such Factor or cause of accident will help to prevent similar Future incident. A case study of tripping issue from incomer has been analyses of a oil plant operation. This Study will help to know the factor that can contribute accident and if know to such factor then management can take needful action to prevent such accident.

KEYWORD: Case Study of Tripping issue from Incomer, Electrical hazard, Failure, Results of Tripping, Electrical Hazard, Risk Control

OBJECTIVE

Objective of case study is to identify main causes of tripping issue from incomer and ensure adequate measure to prevent similar future incident. Effective Case study play major role to aware to employees and prevent any similar future untoward happening.

1. Introduction

Case study is important parameter to know main cause of failure or incident and learn from such failure. Such Learning helps to prevent similar incident. Case study also helps to share and create awareness among employees. Majority of company always focuses to reporting incident, carry out investigation and ensure recommendation. These case study report can be share with employees. This is way to control work place risk and improve safety performance. In past, if company has been failed to identify existing potential source of harm within organization then this can cause of tripping.



2. Case Study

REPORTING PROFORMA

Incident Summary:

Company Name-ABC, Location- Najafgarh, Delhi handling Oil plant operation, tripping issue from incomer observed as a result production getting affected.

COMPANY NAME- ABC INFRASTRUCTRE & ENERGY SERVICES LTD, DELHI

Reporting By: - Sourav Chakraborty

Reporting date: - 05.05.2021

Designation: - Manager

Reporting time: - 16:00 hrs.

Department: - Maintenance

Place: - Najafgarh, Delhi

Brief description: Incomer getting tripped several times due to overloading. Pump side no ACB getting tripped. Tripping was only occurring from incomer side. No relay activation in Pump side. Relay getting tripped in Incomer side. Change the load immediately but no effect in result.

- **Time of Accident/Incident:** - 11:10 hrs.
- **Location:** - Substation S/S-25
- **Injured Person details:** - No injury
- **Work permit Number/ Type:** - NA
- **PPEs being used:** - Yes
- **Any specific damage:** - Each time Production loss for 15 Mins.
- **Type of Injury:** NA. No injury observed.

Sequence of Event

- Line up for production batch line 1101
- Flow started through pump from process to tank farm.
- Suddenly MOV communication failed.
 - No power in JB of MOV
 - No communication with SCADA itself.
 - Operator checked initially and found no power in MOV screen.

- Immediately operate the bypass line through manual gate valve.
- Production started through bypass line

Possible Cause of Accident

- Communication failure due to signal cable fault.
- No communication with SCADA as loop cable failure with controller.
- MOV power failure due to cable fault.
- Proper rated fuse to use to avoid cable burn.
- By ingress moisture burn may occur

Corrective Measure

- Provide training related to MOV operation.
- Provide refresher training to all operators.
- Review inspection program.
- Review work procedure.
- Periodic inspection to do.
- Proper checklist to maintain.
- Fuse rating and overloading condition to check.
- MOV error code to periodically check.
- Signal cable condition to check.
- Proper monitoring from feeder side.
- Cable insulation resistance value to check

3. Analysis

In above case-study we have seen that MOV failure occurred during operation and production losses observed. Possible root-cause analysis also taken into account and their mitigation technique for safer operation. Brief analysis of this as below mentioned:

- Proper checklist was not maintained.
- PM work not maintained properly.
- Communication cable was not properly tagged.
- No inspection of fuse rating.
- Cable IR value record was no there in previous.
- Monsoon protection cover was no there properly.
- Lack of awareness observed related to this type of accidents.
- In a hurry word to be removed from this type critical area.



4. Recommendations

Plan Prevent Protect

Following recommendations are below mentioned:

- Site in-charge to take site inspection and cross verify the critical location before starting of any job.
- Safety talks to be given to all operator on daily basis.
- Related topics to be covered in Daily TBT.
- Job safety analysis should be carried out.
- Operator must be well trained and fit.
- Inspection must be conducted periodically.
- Work related video-graphic training also recommended.
- Being aware of work-related Hazards.
- PM schedule to maintain.
- Maintaining to standards.

5. Conclusion

Tripping issue from incomer has been occurred and plant operation has been effected. If Repeatedly Tripping of incomer production has been suffer. So Need to identical potential risk and take adequate measure to avoid Tripping. Avoid Overloading, Always use standard cable & equipments. Need to carry out inspection regularly and take needful action whenever require.



SAFETY AUDIT IN ORGANISATION

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ABSTRACT

Industries are major sources of economy development of country and create employment opportunities. Industries have positive & Negative impacts. Negative impacts arises due to not follow safety Rules, Procedures & guides. Hazard identification is major parameter to control work place risk. Safety Performance helps to Knows actual condition of organization, identify potential sources of harm and control them. Several Techniques & Method use to measure organisation safety performance, Examine Existing system and seek opportunities to improvement Safety Management System in which one is Technique is safety Audit. This Paper is very helpful to know effective method to conduct Safety Audit and measure Safety Performance. Safety Performance helps to know basic gaps of organization where needs possibility of improvement.

KEYWORD: Safety Audit, Non-Conformance identification Techniques, Seeking Opportunities to improve OHSMS, Accident Prevention, Risk control.

Purposes

- 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 1 [AND SAFETY AUDIT REPORTS], Need to conduct safety Audit Report by occupier once a year and forward a copy of audit report.
- 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 14489:2018, Audit Frequency, Conduct Internal Safety Audit in a one Year & External Safety Audit in a Two Year

1. Introduction

Safety Audit is important parameter that use to identify potential sources of harm or situation of any organization to control Risk in any organisation. In Industries Several potential Sources of harm available, latter that results accident.

In Simple Safety Audit is detailed examination of any organization that use to measure safety performance, identify to existing gaps and seeks for improvement. Safety Audit help to improve organization Safety Performance. Effective Safety System always help to control work place risk and Prevent accident. Accident always effect to business of any organization. Accident cost are two types Direct & Indirect Cost. Indirect Cost are several times more than direct cost. Accident always create Negative impacts. This results to earning capacity of injured family and loss of reputation of organization. Safety Audit effectiveness depend on competence of Auditor.

As Per IS 14489:2018, Internal Audit should be Conducted Annually & External Audit should be conducted once in Two year. In Safety Audit, Auditor identify the gaps of existing system and seek opportunities for improvements. Auditor Submit Report to Auditee organsaition for implementation of Recommendation to ensure safe work place and fulfill compliance obligation.

2. Advantage of Safety Audit:

- They Highlight Potential Problem of organisation
- Increase employee awareness
- Enhance your company Credential
- Save Organisation 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

3. Types of Safety Audit:

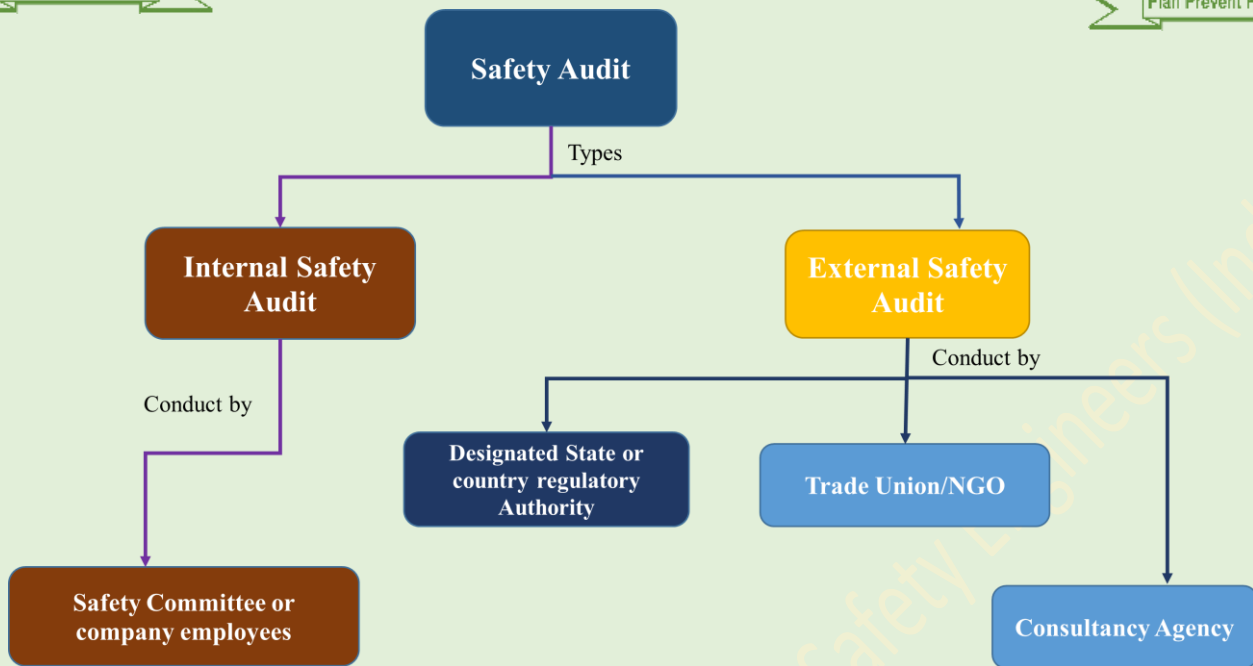


Fig. 1

4. Auditor Attribute

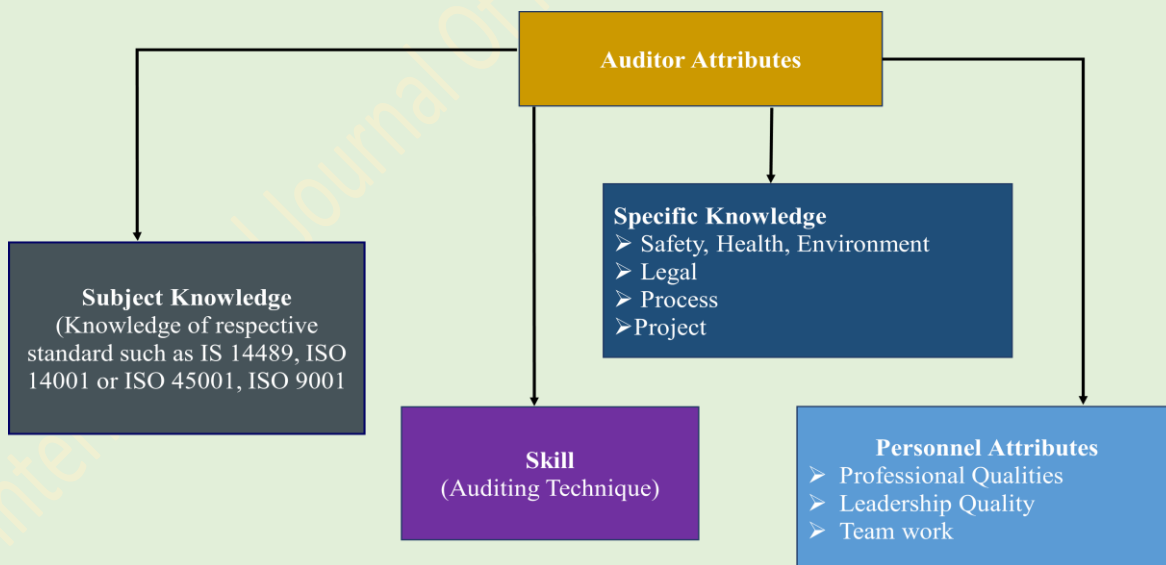


Fig. 2

5. ISEI AUDIT PROCEDURE

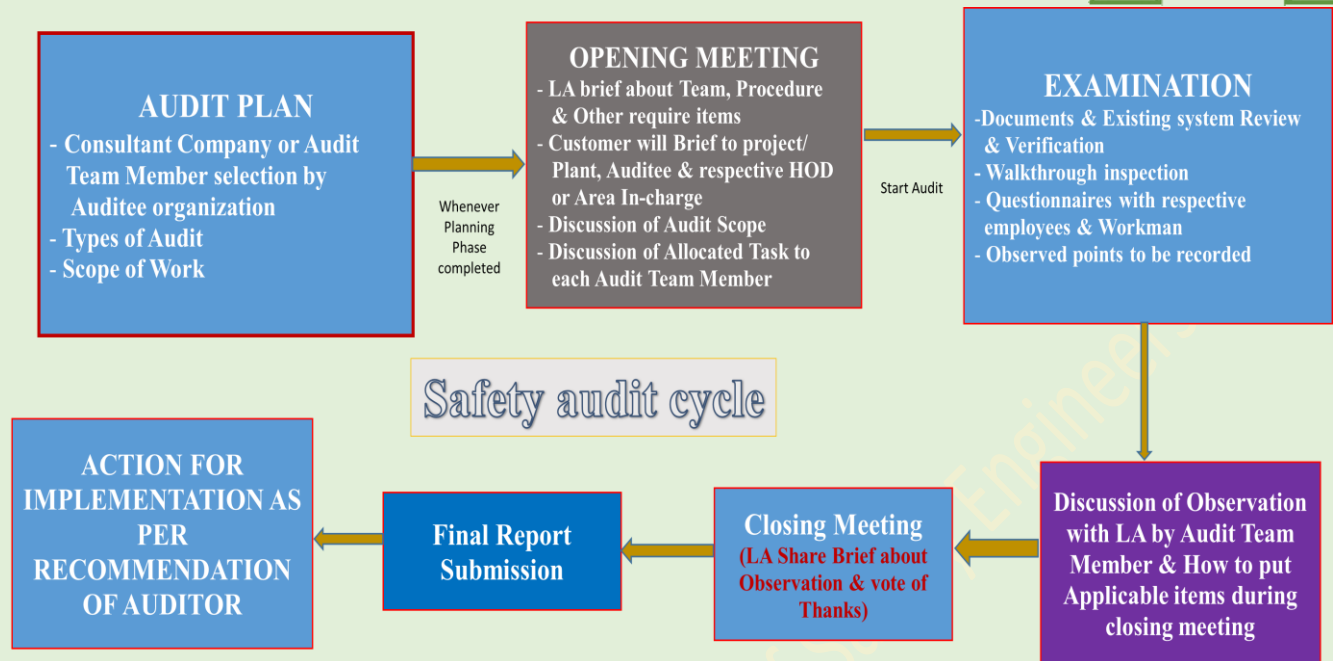
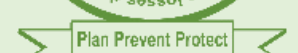
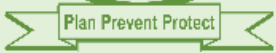


Fig. 3 (a)

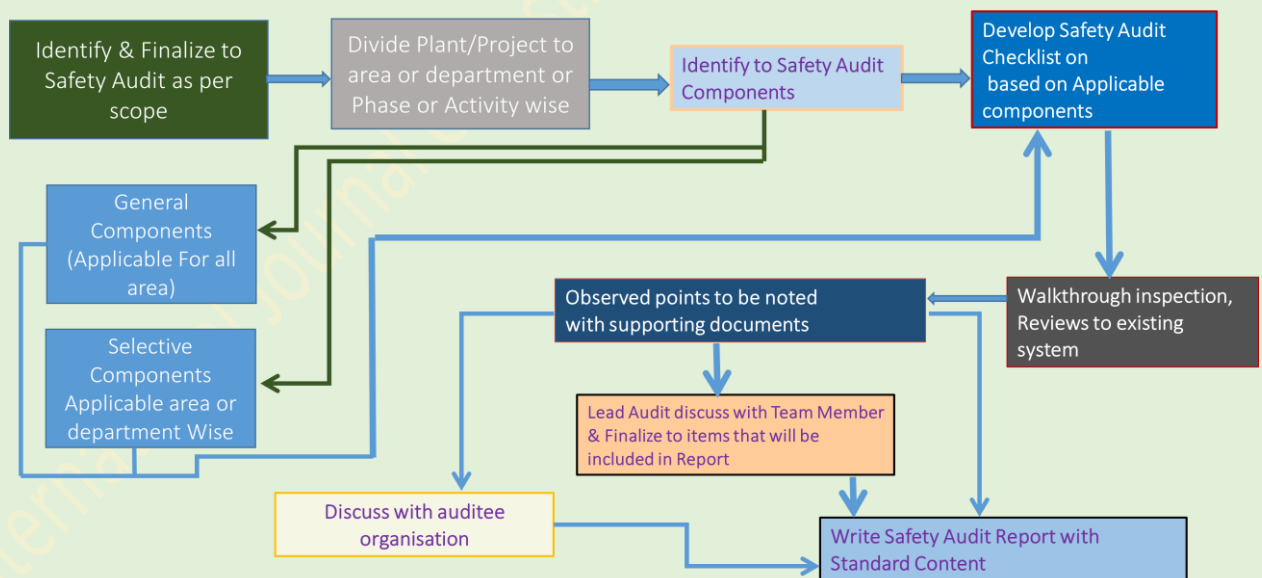


Fig. 3 (b)



6. Internal Safety Audit V.S External Audit

Plan Prevent Protect

Plan Prevent Protect

Internal Safety Audit	External Safety Audit
<ul style="list-style-type: none"> ▪ 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 	<ul style="list-style-type: none"> ▪ An external audit improves internal systems and controls. ▪ An external audit provides credibility. ▪ An external audit gives shareholders confidence. ▪ More expensive ▪ Independency of Auditor ▪ Time consuming ▪ Most effective

7. Element that Check during Safety Audit

Element depends upon Nature of Organisation. Major No. of Organisation such as Safety Policy, Organisation chart, ERP, Training & Record are application of Organisation. Few Elements varies on based on Nature. Few Major elements of Safety Audit area.

- Safety policy
- Safety organization chart
- Competency & Skill of Safety Personnel
- Record of defined Role & Responsibilities
- Training records including safety induction, Tool box Talk and other applicable Training
- Record of plant/Project safety inspections
- Record of Accident investigation reports including Near Miss
- Near miss, Dangerous occurrences & Accidents statistics and analysis
- Examination & Record of tested equipment, Tools, Tackles 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
- Fire detection and firefighting equipment maintenance and testing records.
- Industrial hygiene surveys records such as 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
- 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 or Permission from of plant, layouts from statutory authorities
- Records of any modifications carried out in plant or structure or building
- Shut down maintenance procedures
- Service inspection manuals, records & Procedure record.
- 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
- Waste Management Plan, Record of Waste Generation & disposal
- Calibration and testing records
- Motivational Scheme Program & Its Record
- Record of workplace Environmental monitoring Report
- Work permit program & Records etc.

8. Point Remember during Safety 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

9. ROLE OF AUDITEE ORGANIZATION TO COMPLETE SUCESSFUL EFFECTIVE SAFETY AUDIT

- Senior Mgt. of Auditee Organization should inform to
- respective Head/Area incharge of their plant/ project about audit schedule, scope & support to audit team.
- Auditee Organization should provide adequate resources to Auditor if require.
- Auditee Organization should share correct information to Auditor as require or ask by auditor.
- Confidential document or information when ever sharing to Auditor, Auditee Organization should inform proactively.
- If any issue with Safety System of Auditee Organization, Need to share with Auditor
- Respective Head/ Area in-charge should share process flow details or area summary to Auditor when Auditor ask
- Auditee should show all record, Procedures & program to Auditor when Auditor ask etc.

10. ROLE OF AUDITOR TO COMPLETE SUCESSFUL EFFECTIVE SAFETY AUDIT

- Keep details Knowledge about Applicable Element of Safety System/ OHS system where safety audit is to be conducted
- Auditor should know Emergency Plan content and other similar items for effective review
- Auditor should be more observant/ vigilant during Audit
- Auditor must be effective skill to deal with Auditee
- Auditor should verify to available documents, Procedure or system with site to know their implementation status.

▪ Question with HOD/ Area in-charge and respective employees including

▪ Auditor Should keep List of Safety System Element & Checklist during visit at site or review to system.

▪ In case of any Major observation or issue immediate inform to Auditee Organization



- Lead Auditor will co-ordinate regularly to conduct audit
- Auditor must be Complete Safety Audit with schedule time & submit report within time

11. 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

12. Conclusion:

- Safety Audit help to control work place risk, fulfilling compliance obligation & increase organization reputation.
- Safety Audit is effective method used to examine existing system & seek opportunities to improve organization Safety Performance
- Implementation of recommendation is responsibility of Auditee Organization.
- Auditor should keep Knowledge of IS 14489, ISO 45001, ISO 14001, ISO 9001 & Respective state or country rules to conduct effective safety audit.
- Organization should prepare Safety Audit Program & based on this they should conduct safety Audit (Internal/External) to get Organization safety related objective.
- In Safety Audit Program, Include all Applicable parameter including Safety System element of respective Organization.
- In case of external Audit, Auditor should submit draft report to Auditee Organization first and submit final report whenever Auditee organization confirm.



References:

The Occupational Safety, Health & Working Condition Code 2020

- Manufacturer Storage, Import of Hazardous Chemical Rules 1989,
- Maharashtra Factories (Safety Audit) Rules, 2014 Published vide Notification No. FAC. 2012/C.R.278/Lab- 4, dated 24.2.2014
- The IS 14489:2018
- ISEI Manuals





RNSN SERIATE (P) LIMITED

About Us: RNSN Seriate (P) Limited is private company limited by share. RNSN Seriate (P) Limited is Engineering, Procurement, Construction, Manpower supply & multi solution Engineering Company. RNSN Seriate (P) Limited is an ISO 9001:2015, ISO 14001:2015 & ISO 45001:2018 certified company. Corporate Identification No. (CIN) of RNSN Seriate (P) Limited is U93090CT2018PTC008917. RNSN Seriate (P) Limited also provides Consultancy, Chartered engineering, ISO Auditing & Certification Services.

RNSN Seriate (P) Limited vision is to deliver world class best services and Products to our customer as per their expectation.

Sustainability: For sustainable business, RNSN Seriate (P) limited is committed to fulfil Social, Economic & Environmental requirements and ensure compliance as per applicable law, norms & codes. RNSN Seriate (P) limited will take all necessary steps to achieve zero harm, save natural resources and protect to environment.

Health, Safety & Environment (HSE) Policy

RNSN SERIATE (P) LIMITED is committed to ensure Safe healthy work environment to protect human being as well as Environment. In Order to achieve Health Safety & environment related objective, Policy is:

- Ensure compliance on based on relevant National, International Rules, Regulation, Norms & Codes
- To main high Safety Standard at workplace, we adopt best Safety Practices & Conduct Safety Program regularly.
- To Plan & effective implementation of Safety Health, Environment management system
- Being new organisation, always seek opportunities and Continual improvements in products, process, Services and Peoples to ensure compliance & standards.

RNSN Seriate (P) Limited takes all necessary steps to achieve zero harm & increase stakeholders satisfaction.

Date: 30/11/2018

Director

Quality Policy

RNSN SERIATE (P) LIMITED is committed to Manufacture, Supply products, Provide Engineering & Consultancy Services conforming to customer's quality standards and meet their requirements on time through effective planned activity and continual improvements of products, process, Services & Peoples to ensure compliance as per relevant national and International Norms, Codes & Standard.

RNSN Seriate (P) Limited take all necessary step adopt standard practices to maintain quality of Products, services & increase stakeholders satisfaction

Date: 03/12/2018

Director



TRAINING CALENDER

Plan Prevent Protect

Training Calendar (October- December 2021)

Training Title/ Course	Duration	Schedule	Location	Remarks
ISE- ICCOHSEM (International Certificate course in Occupational Health Safety & Env. Mgt.)	Min. 96 hours Training	01/10/2021 to 11/10/2021	Raipur	E-Learning/ Regular mode Exam date 12/10/2021
First Aid & CPR	1 days	13/10/2021	Raipur	Regular/ Class Room
Lead Auditor ISO 45001:2018	5 day	15/10/2021 to 20/10/2021	Raipur	Virtual/ Regular Mode
ISE-SM (Safety Management at work place)	3 day or Min.24 hours Training	25/10/2021 to 27/10/2021	Raipur	Virtual/ Regular Mode
Lead Auditor ISO 14001:2015	5 day	02/11/2021 to 06/11/2021	Raipur	Virtual/ Regular Mode
ISE-EM (Environmental Management)	3 day or Min.24 hours Training	09/11/2021 to 11/11/2021	Raipur	Virtual/ Regular Mode
ISE-FSM (Fire Safety management in any organization)	3 day or Min.24 hours Training	15/11/2021 to 17/11/2021	Raipur	Regular/ Class room
Integrated Lead Auditor (ISO 45001:2018, ISO 9001:2015, ISO 14001:2015)	6 Days	20/11/2021 to 31/11/2021	Raipur	Virtual/ Regular Mode
ISE-TQM (Total Quality Mgt.)	3 day or Min.24 hours Training	01/12/2021 to 03/12/2021	Raipur	Virtual/ Regular Mode
Safety Audit in any organisation	3 days	04/12/2021 to 06/12/2021	Raipur	Virtual/ Regular Mode
Lead Auditor ISO 9001:2015	5 day	07/12/2021 to 11/12/2021	Raipur	Virtual/ Regular Mode
ISE-RM (Rescue Operation in any organization)	2 Week	09/12/2021 to 24/12/2021	Raipur	Regular mode
ISE- ICCOHSEM (International Certificate course in Occupational Health Safety & Env. Mgt.)	Min. 96 hours Training	13/12/2021 to 23/12/2021	Raipur	E-Learning Exam date 24/12/2021
ISE-SM (Safety Management at work place)	3 day or Min.24 hours Training	16/12/2021 to 18/12/2021	Raipur	Virtual/ Regular Mode
Lead Auditor ISO 45001:2015	5 day	21/12/2021 to 27/12/2021	Raipur	Virtual/ Regular Mode
First Aid & CPR	1 days	29/12/2021	Raipur	Regular mode
ISE- IDOHSEM (International Diploma in Occupational Health Safety & Env. Mgt.)	One year	Last Date of Registration 30/10/2021	Raipur	E-Learning/ Regular mode Exam Date June 2022 (Proposed)





Diploma/ Post Diploma in industrial Safety/Industrial Safety & Fire/ Fire Safety/ Environmental Management/ Industrial Rescue Operation & Management / Disaster Management	One year	Dec. – Jan. (2021-22)	Raipur/ Rampur	Regular
Certificate Course in Industrial Safety, Industrial Safety & Fire, Industrial Rescue Operation & Management, Fire Safety & Security Management, Disaster Management, Environmental Management, Quality Management, Fire Safety Management	3 Month	Oct.- December 2021	Raipur/ Rampur	Regular/ Class room

Risk assessment & Control, Behavior based safety, chemical safety in industries, Safety in construction industries, Scaffolding safety, Petroleum & Gas industries safety, Ergonomics, Mock Drill, HAZOP study, Emergency planning, Disaster Mgt., Fire Safety, Hoisting & Rigging Safety, Defensive Driving, Environmental Mgt., EIA, Rescue Operation, Live Saving Procedure, WAH, Confined Space work Safety etc short Term Training also conducted by ISEI time to time.

Three Month Certificate Training course also Conducted by ISEI in Field of Rescue Operation & Management (Organisation), Industrial Safety, Industrial Safety & Fire, Disaster Management, Environmental Management, Quality Management, Fire Safety Management, Environmental Management, Safety Management in Chemical Industries, Safety Management in Construction Industries, Security Management, Occupational Health Safety (OHS), Occupation Health & Industrial Hygiene (OHIH), Scaffolding Inspector Training and Safety, Health, Environmental Management.

Note: Diploma & ISE-IDOHSEM Courses conducted twice in a year. December-January session known as winter session and June-July session is known as summer session.

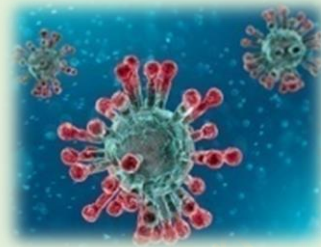
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“Protect yourself and your family From Novel Corona Virus infection to take adequate precautionary measure”

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