

Study of Hazard Identification & Risk Assessment Techniques

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ABSTRACT

Now a day numbers of people injured or killed or huge losses of organisation property due to not controlling workplace Risk. Causes of such organisational harm are due to hazard. Hazard means any sources or situation that have potential to cause harm. To control workplace risk, Different techniques used to identify hazard and ensuring suitable control measure to prevent any type of organisational losses or harm in which one techniques is Hazard identification & risk assessment.

This study indicate positive safety impacts to control organisational losses proactively and ensure safe work place. It focuses how to identify sources or situation that may lead to cause accident & decide magnitude of risk of hazardous event and ensuring their control measure.

1. Keywords:

Hazard identification & Risk Assessment, Risk Control, Loss Control, workplace safety

2. Introduction:

Hazard identification and Risk Assessment is effective method to control workplace risk. Risk is Combination of Likelihood & Consequences of specific Hazardous event occurring Safety Inspection, Job safety Analysis (JSA), Safety Audit, Checklist based inspection, like different techniques used to Identify hazard in which one most effective techniques is hazard identification & Risk Assessment (HIRA). Hazard identification & Risk Assessment (HIRA) is proactive approach, so hazard identify and Risk assessed proactively and easy to decide control measure and execute at workplace to control workplace risk.

It is prime responsibility of occupier/ employer to ensure safety of people & ensure safe healthy work environment, so organisation choose effective method to identify & control workplace risk.

3. Purpose of Hazard identification & Risk assessment

- To identify Potential source of harm & deciding magnitude of risk
- Controlling work place Risk
- Reducing organisational harm
- Increasing productivity
- Fulfilling legal requirement

4. Hazard identification & Risk Assessment.

Hazard identification is a procedure used to identify sources or situation that have potential to cause harm. & Hazard means any source or situation that have potential to cause harm like injury, fatality, ill health, property damage. Risk is combination of likelihood and consequences of specific hazardous event occurring. **Risk Assessment** is overall process of estimating the magnitude of risk and deciding whether the risk is tolerable or not. Tolerable Risk means Risk that has been reduced to a level that can be endured by the organization having regards to its legal obligations and its own safety Policy.

Checklist Based inspection, Safety Inspection, Job safety Analysis like different techniques used to identify hazard. Previous injury report, Consultation of employees & experts advice play vital role to know organisational hazard. Safety Legislation, Codes, Safety manual, Material Safety Data sheet is also best source to know workplace or process related hazard. Risk can be assessed to consider likelihood & Consequence of hazardous event.



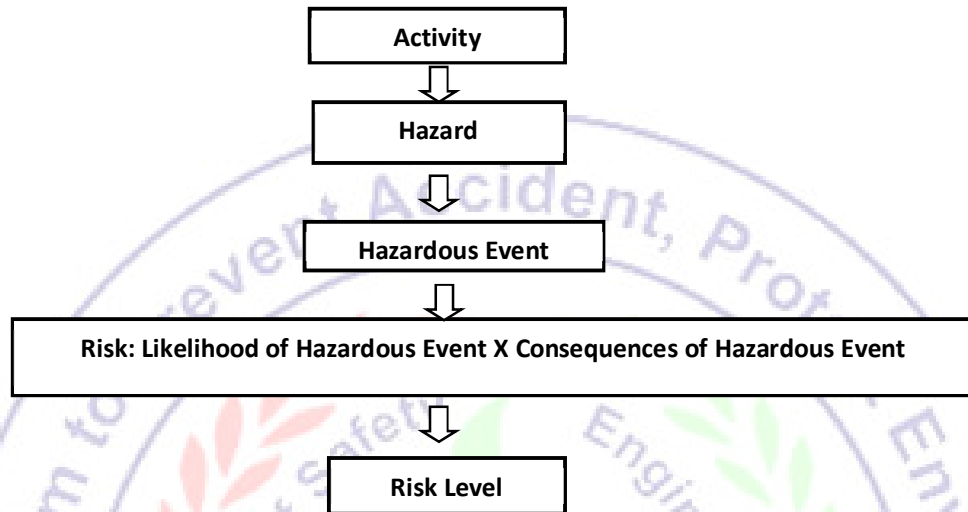
5. Risk Evaluation Method: The following criteria are necessary for organizations to carry out Effective risk assessment:

- I). **Classify work activities:** Select & Prepare a list of work activities that run in organization and collect information about them like procedures, Materials, manpower.
- II). **Identify hazards:** Identify sources that have potential to cause harm. In other word identify all hazards associated in each work activity.
- III). **Determine risk:** To estimate risk, Consider Likelihood & Consequence of Hazardous event. Consider existing control measure & gaps if any within organization and decide who might be harmed and how; what might be damaged and how; what will be cost of incident if occur. Select rating of likelihood & Consequence of hazardous event and multiply them to evaluate magnitude of risk. Risk can be also calculated with the help of Table matrix as per decided by organisation.

Risk: Likelihood (L) of Hazardous event X Consequence (C) of hazardous event

IV) **Decide if" risk is tolerable:** Decide planned or existing safety control measure or system are sufficient to control risk up to tolerable level. Risk can be control to reduce likelihood or consequence or both Together of hazardous event.

V). **Prepare risk control action:** If Risk level is not acceptable them prepare risk control action plan and execute it.



Likelihood & Consequence Rating of Event:

Likelihood of Hazardous event		Consequence of Hazardous event	
1	Very unlikely	1	No injury
2	Unlikely	2	First Aid Injury
3	Likely	3	Lost Time Injury (absence from duty more than 2 day and less than 21 days)
4	More Likely	4	Major injury (absence from duty more than 21 day)
5	Most likely/ Certain	5	Fatal/ Catastrophic

Risk Classification

Rating (R= L X C)	Level of Risk	Remarks
1-3	Low	No additional action required but implemented control measure to be maintained regularly.
4-9	Medium	Regular Supervision & Control measure to be taken.
Above 9	High	Stop work and take immediate action till risk not minimize up to As low as reasonable practicable (ALARP)

RISK ASSESSMENT PERFORMA

Location:

Department:

Name of agency:

Date:

Activity	Hazard	Consequence	Existing control measure	Current risk rating			Additional control Measure	Residual risk			Remarks
				L	C	R		L	C	R	

A standard format can be develop to assess risk and future record. Risk can be also calculated with the help of table matrix or other method as per respective state legislation, codes and company policy. Likelihood & consequence rating of event will be rated on based on Likelihood & Consequence/severity of hazardous event.

6. Risk Control Procedure

Risk can be reduce to control workplace hazard and unsafe acts. Workplace hazard can be control through hierarchy of hazard control method. Eliminate the hazard, Substitute the process or material, Engineering control method, Administrative control method & Personal protective equipment (PPE's) are steps used to control workplace risk and this steps are known as hierarchy of hazard control method. PPE's is last consideration because it doesn't eliminate hazard, it minimise severity of harm.

Education & Training, effective implementation of work permit / Lock out Tag out System, Effective Supervision, Emergency preparedness & Plan, Effective Reporting system and developing behaviour based safety culture play vital role to identify and control workplace risk. Risk can be control to reduce Likelihood of harm or Consequence of Harm or Both Together.

7. Conclusion

Hazard identification & Risk assessment is effective techniques used to control workplace risk. It is proactive approach, so workplace risk accessed and control earlier before happening any incident. In this Method we select activity, identify hazard and then decide likelihood of event & their consequence. If risk is high or more then we ensure suitable control measure to minimise risk upto Tolerable level. Person who has competence, knowledge about process or activity, knowledge about legislation & Codes, Good Knowledge of hazard identification & risk assessment procedure can do risk assessment in Suitable manner.

References

- Study & Analysis of Occupational Health Safety Management System (OHSMS) in a organisation: Vol. 04, Issue 01, JAN- FEB, 2017 Pg. 34 – 39
- OSHA—Occupational Safety and Health Administration, “Occupational Safety and Health Guidelines,” 2009.
- The Building & Other Construction Workers (Regulation of Employment and Conditions of Services) Act, 1996
- IS 14489 , Code of Practice on Occupational Safety & Health Audit"

