

# Risk Assessment Procedure Step wise Guide

If you are willing to prepare risk assessment for your company work then this is right place to learn the risk assessment process. You will learn hazard identification, risk calculation and ultimately risk management by reducing the risk to an acceptable level.

The role of proper health and safety hazard identification and **risk assessment** is very important. The process normally covers all aspects of the activity which is under consideration.

A good risk assessment procedure always emphasizes the involvement of all levels of employees. Which ensures that risk assessment is effective and covers all necessary control measures for implementing all recommendations to achieve safe and secure work place.

While conducting the risk analysis for any activity it is suggested to first prepare the comprehensive method or procedure. Ultimately a good procedure or **method statement** can provide a basis for identifying the health and safety hazards and then finding the related risk levels.

As per one of our previous article regarding Health & Safety Risk Assessment I mentioned that this is a step wise process.

Now we shall explain each step in detail to better understand the complete risk assessment process and making you able to conduct this exercise independently.

## **Health and Safety Risk Assessment Process**

### **Step 1: Hazard Identification**

The first step to start **risk assessment** for any activity or situation or process is to identify the health and safety hazards that are associated with that activity.

At this stage the significance of the hazard is not considered only we need to find out whether this hazard exists or not specific to that activity.

Similarly if we are talking about a process hazards then we can identify it for each activity to complete that process.

Remember to record minute hazard even if you think this is less important (you will learn why later when evaluating the risk).

Below is the list of some of most common health safety and **environmental hazards**, which you can consider while identifying an activity.

- Fall from height or falling objects
- Noise
- Heat and temperature
- Fire and combustible materials
- Spillage and slips and trips due to spills
- Air Emissions (dust, vapours, fumes, smoke etc.)
- Solid and liquid waste
- Vibration
- Hazardous materials
- Confined Space
- Electricity/Electrocution
- Flammable Materials
- Chemicals
- Paints, adhesives, thinners
- Land contamination
- Lone Working
- Manual Lifting / Ergonomics
- Excavation/Trenches

These are few and there can be many more depending upon the type of activity you are going to analyse.

I recommend to use a check list to record your observations and involve as many people as you can who are having past experience of the same process or activity.

Involving the most relevant people while doing **risk assessment** is the key for effective implementation of control measures and providing safe and healthy environment.

Other examples of workplace hazards may include frayed electrical cords that can result in electrical shock, boxes stacked improperly that can fall on someone, noisy machinery that can damage your hearing.

## **Health and Safety Risk Assessment Procedure**

### **Step 2: Risk Calculation**

We already identified the hazards associated with the activity of concern. Now we are going to evaluate the actual risk quantitatively associated with each hazard or aspect.

We will use a typical HSE risk assessment matrix for estimating the severity and probability of occurrence of the unwanted event/damage.

Remember to involve as many people as you can for doing this exercise. Because while deciding about the probability the experienced people can

tell how many times the event can happen or has happened during their career or life.

Similarly about the severity or impact of the hazard, accurate information can be contributed by experienced personnel only.

You can use the following table for scoring the severity depending upon the guidelines/effects mentioned against each score.

The persons who are conducting risk assessment should not only rely upon below mentioned criteria.

There are many different criterion available online on the internet, although this one is also sufficient to conduct a *good risk assessment*.

Also the team leader should get feedback from all involved on each *health & safety hazard* and ask about the impact of the past events if happened like mentioned above.

### Health & Safety Risk Assessment Matrix

Score	Severity	Guidelines for evaluation of Health & Safety Hazards (Use score against each row if the below can happen related to the activity you are evaluating)	Guidelines for evaluation of Environmental Impact (Use score against each row if the below can happen related to the activity you are evaluating)
1	Negligible	If the damage or injury or impact is negligible Only discomfort or irritation No property damage or production loss	Limited emissions within the organization's premises not affecting the external community Small spills, limited fire etc.
2	Minor	1 day absence First Aid Minor production or property loss(>10000)	Disfigurement of natural environment Deforestation Migration of fauna
3	Moderate	More than 2 days absence	Indirect damage to environment

		Medical treatment Moderate production or property loss(>50000)	Depletion of natural resources Wastage of energy Destruction of natural habitat
<b>4</b>	<b>Critical</b>	Serious illness or permanent disability Major Production or Property Loss (>100000)	Direct but intermittent emissions to the ecosystem Limited public complaints Intermittent excursions beyond regulatory limits
<b>5</b>	<b>Catastrophic</b>	Death Significant Production or Property Loss (>1000000) Offence against law or regulation	Direct and continuous emissions to ecosystem Large scale public/community complaints Continuous excursions beyond regulatory limits with fine

Similarly following table shall be used for deciding about the probability of happening of the unwanted event.

Again all personnel should recall their experiences about occurrence of same kind of events in their careers or even the industry specific data available on many websites. That data can be used for evaluating the likelihood of an event.

<b>Score</b>	<b>Probability</b>	<b>Guideline for Evaluation</b>
<b>1</b>	<b>Rare</b>	Will not happen in 20 years and has not happened in last 20years in same industry/activity
<b>2</b>	<b>Unlikely</b>	Will not happen in 10 years and has not happened in last 10years in same industry/activity
<b>3</b>	<b>Moderate</b>	Will not happen in 5 years and has not happened during last 5years.

<b>4</b>	<b>Likely</b>	May happen in 1-5 year and has happened during last 1-5 years for same kind of activity
<b>5</b>	<b>Most Certain</b>	Will happen anytime in 1 year and is happening or has happened frequently in the same type of industry/activity during last 1 year.

The likelihood and severity are combined in one table that is called Risk Assessment Matrix or risk criteria.

Below you can see one typical **risk matrix** which combines severity and probability in one table.

### **RISK MATRIX**

Severity	People	Assets	Environment	Reputation	Improbable 1 in 100,000 Years	Remote 1 in 10,000 Years	Occasional 1 in 1000 years	Probable 1 in 100 years	Frequent 1 in 10 years
5-Catrophic	Multiple fatalities or permanent total disabilities	Extensive damage	Massive effect	International impact	<div style="text-align: center;"> <p>High Risk</p> <p>Medium Risk (ALARP)</p> <p>Low Risk</p> </div>	<p><b>High Risk</b></p>			
4-Severe	Single fatalities or permanent total disabilities	Major damage	Major effect	National impact					
3-critical	Major injury or health effects	Local damage	Localised effect	Considerable impact					
2-Marginal	Minor injury or health effects	Minor damage	Minor effect	Minor impact					
1-Negligible	Slight injury or health effects	Slight Damage	Slight effect	Slight impact					

  

<b>HIGH</b>	3-E 4-C,D,E 5-B,C,D,E
<b>MEDIUM</b>	1-D,E 2-B,C,D,E 3-A,B,C,D 4-A,B 5-A
<b>LOW</b>	1-A,B,C 2A

### Health and Safety Risk Assessment Step 3:

#### Recommend Control Measures

After understanding the scoring of likelihood and consequences now you need to record your risk assessment on risk assessment form that is the output of the whole process.

This form can be used for submission to the clients/third parties as part of method statements or standard operating procedures.

The original risk is calculated as the product of probability and severity. Based upon the value of identified risk it is necessary to suggest control measures.

Following is the hierarchy of controls that should be followed while suggesting the control measures as mentioned in OHSAS standard.

1. **Elimination:** Hazard is to be eliminated completely i.e. if flammable materials are there and we are going to start welding work, to eliminate fire hazard it is necessary that remove the flammable material before start of work.
2. **Substitution:** If elimination is not feasible then try to substitute the machine, method or material responsible for the risk i.e. using the grinding/cutting machines equipped with vacuum suction for debris/dust.
3. **Engineering Control:** Apply suitable engineering control before start of the work for example after the trenching work proper walls or trench boxes are inserted prior to sending the workforce in the confined area also putting machine guards etc.
4. **Signage/warnings and or Administrative Controls:** Proper safety signs and slogans are displayed and where required persons are deputed to guide people regarding the risks in that area.
5. **Personal Protective Equipment:** This is the last option if the risk is still there personal protective equipment PPE also termed safety gear is provided before start of the work.

After suggesting the control measures the risk value is recalculated and there may be change in likelihood/probability of occurrence, remember the severity will remain the same if the incident happens in most cases.

### Calculate Residual Risk

Now the residual risk is also recorded on the same **risk assessment** form with necessary control measures to start the work.

The risk assessment is signed by safety in-charge and distributed to all the operatives that are involved in that activity.

The risk assessment is main document that should be available on the working platform/workshop and to be discussed in toolbox talks/safety meetings.