

SAFETY GUIDELINES FOR IRON & STEEL SECTOR		
MINISTRY OF STEEL, GOVT. OF INDIA	CLASSIFICATION AND INVESTIGATION OF INCIDENTS	Doc. No: SG/26
		Rev no. : 00
		Effective Date : --

1. OBJECTIVE

The purpose of this document is to provide guidance on the classification and investigation of incidents to be observed in Iron & Steel Industries.

2. SCOPE

This guideline is applicable to Iron and Steel Industries as per applicability.

3. PROCEDURE

Incidents are unplanned events or chains of events that have, or could have, resulted in injury or illness or damage to assets, environment or company reputation. When the harm or losses are narrowly escaped, such incidents are called near-miss incidents.

All incidents are to be duly reported & investigated. The maximum time period allowed for incident investigation and deployment of recommendations & consequence management for different category of incidents are to be decided by the organization and be strictly followed.

3.1 Classification of incidents

- i) **Fatality:** Death resulting from a work related injury, regardless of the time intervening between the incident and the resulted death.
- ii) **Lost Time Injury (LTI):** LTI is occupational injury in the workplace (Injury on Works) which prevents an employee from joining duty in the next scheduled shift.
- iii) **First Aid Case (FAC):** First Aid cases are occupational injuries for which immediate aid is provided to the injured person either at shop floor or at plant First Aid center and he/she is released afterwards as fit for duty.
- iv) **Injury on duty (IOD):** IOD is an occupational injury, preventing an employee from joining duty in the next schedule shift, which is caused due to an incident happened in company premises excluding factory premises or the victim(s) is(are) engaged outside company premises for company business.
- v) **Fire Incident:** Fire Incident is an unplanned ignition of flammable or combustible material (solid, liquid, or vapor) either with an open flame or without flame (smoldering). This includes smoldering, charring, smoking, singeing, scorching,

carbonizing, uncontained electrical arcing / sparking, or evidence that any of these have occurred.

- vi) **Process Safety Incident:** An unplanned or uncontrolled loss of containment (primary) of any Hazardous material / release of energy including non-toxic and non-flammable materials (e.g. Steam, Hot condensate, Nitrogen, Compressed CO₂ or compressed air) from a process or an undesired event or condition that under slightly different circumstances either did result in or could have resulted in a loss of containment (LOC) of material /release of energy like Major Fire, Gas release and Explosions or major process interruption.

Incidents like actuation of safety relief valve, tripping due to operation outside operating parameters, activation of critical alarms (as defined in PSI, PHA), interlock failure, small fires due to leakage of chemicals and hot metal (not fire in bins, conveyors, buildings etc.) but has not resulted in Injury / property / environment damage should also be considered as process incident.

All such incidents shall be reported, no matter the quantity.

Routine planned, intended and/or controlled releases do not need to be reported provided that the release is part of a risk assessment procedures and in line with Local environmental regulations.

For all unplanned releases there are two LOC types:

- a) Controlled releases: caused by the correct / expected activation of a safety system, e.g. relief device. Although `activation of such a barrier gives us useful information about process control.
 - b) Uncontrolled releases: caused by the failure of a primary containment, by spillage during loading and unloading of hazardous material or by incorrect activation of a safety system, e.g. relief device. This LoC type includes planned releases that are not controlled as per the designed control system/procedures.
- vii) **Restricted Work Case (RWC):** A Restricted Work Case is a work related injury in which the employee resumes his/her duties from the next shift but is unable to perform his/her assigned activities/ routine job (the person is given light duty).
- viii) **Property Damage:** Any incident that results in loss of equipment/property of the organization.
- ix) **Red Incident/Yellow Incident/Blue Incident/Green Incident:**

Follow HSE Risk matrix (Annexure-I). Incidents which fall under the red zone of the risk matrix (risk is computed based on likelihood and consequence) is called red risk. Red risk incidents have fatality(s) potential.

Incidents which fall under the yellow zone of the risk matrix is called yellow risk. Yellow risk incidents have LTI(s) potential.

Incidents which fall under the blue zone of risk matrix is called blue risk. Blue risk incidents have minor injury(s) potential.

Incidents which fall under the green zone of risk matrix is called green risk. Green risk does not result in injury/ poor health effect.

- x) **Medical Treatment Case:** A Medical Treatment Case is a non-injury case happened at work premises where the person becomes unfit due to medical illness only and is referred to hospital by the first aid center doctors.
- xi) **Assault, Sabotage, Theft:** All on-site fatalities and injuries resulting from assault, sabotage and theft inside the factory premises shall be reported.
- xii) **Non-accidental death /Medical Death Case:** Non-accidental deaths of employee/ contractor employee shall be notified and investigated to
 - a) decide whether there is a causal relationship between work and the death, in which case the death should be classified as work related and recorded in statistics,
 - b) identify work related causes or contributing factors that may provide the grounds for corrective actions and improvement,
 - c) Establish whether management systems were in place to ensure that fitness of personnel was in line with the requirements for the people's job.
 - d) address the following questions:
 - i) Were there any work related exposures to hazardous agents, e.g. contacts with hazardous substances, poor working environment, which could have contributed to the death?
 - ii) Were there any pre-existing medical conditions?
 - iii) Has the individual been declared fit to carry out his normal duties in compliance with company standards?
 - iv) Did the individual exhibit any signs or symptoms associated with the cause of death before or during his recent work period?
 - v) Was the individual recently referred to a doctor or hospital?
 - vi) Where death occurred on the company premises, were the company medical emergency response procedures, including provision of first aid and treatment, suitable and complied with?

Examples:

Work related:

- Evidence that an individual has been exposed to high levels of a hazardous substance during the course of his work.
- The individual committed suicide and subsequent investigation showed that his depression was mainly caused by work related stress factors.

Non-work related:

- Investigation has shown that an individual, who was previously found medically fit for his duties, has died from the consequences of a heart attack or due to some medical ailment.
- xiii) **Deliberate death:** Suicides and homicides should be notified as soon as practicable. If the initial investigation indicates a work relationship they should be investigated in the same way as an accidental death and included in statistics.
- xiv) **Occupational Illnesses:** Occupational illness is any abnormal condition or disorder, other than one resulting from an injury that is caused by or mainly caused by exposures at work. All the occupational illness cases need to be reported and investigated for recurrence prevention.
- xv) **Near misses:** Near misses are incidents that under slightly different circumstances could have caused injury or damage to assets, the environment or company reputation, but did not (incident has occurred) due to critical role of time and distance.

3.2 Compliance to Statutory requirement of Accident Reporting

(i) Compliance to Statutory requirement of Accident Reporting

Duly filled up Form as applicable to the work location to be sent to Inspector of Factory/DGMS or other statutory authority for the applicable incidents within specified time period.

As per Factories Act Section 88, notice of certain accidents: Where in any factory an accident occurs which causes death, or which causes any bodily injury by reason of which the person injured is prevented from working for a period of forty-eight hours or more immediately following the accident, or which is of such nature as may be prescribed in this behalf, the manager of the factory shall send notice thereof to such authorities, and in such form and within such time, as may be prescribed.

As per Factories Act Section 88A, notice of certain dangerous occurrences: Where in a factory any dangerous occurrence of such nature as may be prescribed occurs, whether causing any bodily injury or disability or not, the manager of the factory shall send notice thereof to such authorities, and in such form and within such time, as may be prescribed.

(ii) Reporting of incidents

All the business, functional and operational units under the control of a company/organization control are required to report the incidents as given below:

- Front Line Management, under whose jurisdiction incident has happened, should immediately notify the Chief/ Head of the department and the Safety Person concerned about the occurrence of the incident via direct contact through mobile phone call or text message (SMS).
- The Safety Person concerned should report to Chief/ Head Safety via direct contact through mobile phone call or text message (SMS) immediately.
- Chief / Head shall report Fatality/Lost Time Injury/ Dangerous Occurrence to the designated Senior persons of the company via text message (SMS) on mobile within 1 hour followed by a detailed report. For other incidents, the reporting guidelines of the respective organization are to be followed.
- Government agencies shall be notified within stipulated time as per local legal requirement as applicable.
- Respective line manager shall log Preliminary Incident Report (PIR) in IT Based Safety System under the tab “Incident Investigation” within the same shift of work during which the incident has occurred. Where IT based Safety system is not available, organization should decide the incident reporting repository requirement.

3.3 Incident Investigation

Incident investigation needed to be conducted within the stipulated time period from the day of incident. Investigation team necessarily is Cross functional including expert(s) from same and or outside department, Safety representative and or employee’s representative as applicable. The Incident Investigation team is needed to be formed within two days of the incident.

The team needs to investigate and find evidences for the following as mandate:

- i) Visit to the workplace to collect details of the Injured Person (s)
- ii) Find out whether similar incidents happened in the past
- iii) Risk level as per HSE risk matrix or any other suitable Risk Matrix followed by the organization
- iv) Additional safeguards provided to prevent recurrence of the incident until the investigation is completed
- v) Incident Analysis – Using proper incident investigation tools
- vi) Recommendation: Team shall give specific recommendation with respect to each root cause, which shall be provided in system with the following information:

Category

Fool Proof

Fail Safe

Fail Soft

Linked Factor

Human
Physical
System

Rehabilitation requirement, if any arise as per medical board recommendation for the injured person after treatment, should be decided by departmental management team & HRM along with Union.

Recommendation of the following type to be identified:

- a) **Generic Recommendation:** If team ruminates that the recommendation shall be implemented in all the locations, selection would be “Generic Recommendation”. It would be shared with Chief Safety for horizontal deployment.
- b) **Own Department:** If Recommendation to be implemented by the department in which Incident has happened, selection would be Own department.
- c) **Specific Department:** If recommendation to be implemented by the department other than incident occurring department, applicable department can be chosen.

The reports of Incidence Investigation shall cover the following points:

- Classification of incident
- Details of injured person(s)
- Place of incident
- Date, Shift & Time of occurrence
- Brief description of the incident
- Additional safeguard (introduced immediately after an incident till investigation is complete and recommendations are compiled)
- Chronology of events
- Evidence tendered
- Actual observation of the incident site and other details by the members of the committee
- Cause of the incident by using appropriate investigation tool
- Key factors identified
- Conclusions
- Compensation / benefits to the affected employee(s)
- Remedial measures to prevent recurrence (Recommendation with Responsibility and Target Date)

- Fixing of responsibilities / administrative action: As decided by the enquiry committee in line with the consequence management system of the plant
- Investigation Team details
- Statement of eye witness, site photographs & layout, medical treatment reports & fitness certificate of the injured person if applicable and any other reports etc. shall be annexed as evidence

References:

1. Tata Steel India Safety Standard: Incident Classification, Reporting & Investigation (SS/GEN-08)

Annexure 1

Sample HSE Risk Assessment Matrix

HSE Risk Assessment Matrix (RAM)

Likelihood	F1 (Almost Certain)					I
	F2 (Likely)			II		
	F3 (Possible)		III			
	F4 (Un Likely)					
	F5 (Rare)	IV				
		C1	C2	C3	C4	C5
Consequence						
People	No injury /Local Offsite Treatment	Minor Injury / Health Effect	Major injury or Reversible health effect	Single Fatal / Irreversible health effect	Multiple Fatality / Irreversible health effect to many	
Asset	Slight damage	Minor damage	Moderate damage	Major damage	Massive damage	
Community	Slight impact	Limited impact	Considerable impact	National impact	International impact	
Environment	No Effect / Slight Effect	Minor Effect	Moderate Effect	Major Effect	Massive Effect	