

Unwanted Events: events that lead, or could lead, to unwanted results: accidents, incidents, losses, harm, production delay, quality problems, claims, image erosion, errors, mistakes, rework, lost time, and etcetera.

This document is given for setting up a protocol for investigation and – analysis of unwanted events. It is offered as a basis from which a company can construct its own protocol.

Modifications and/or additions should be made by the company **to fit the needs and terminology of the company**, determined by the general and specific legislation and other internal or external requirements.



Definitions

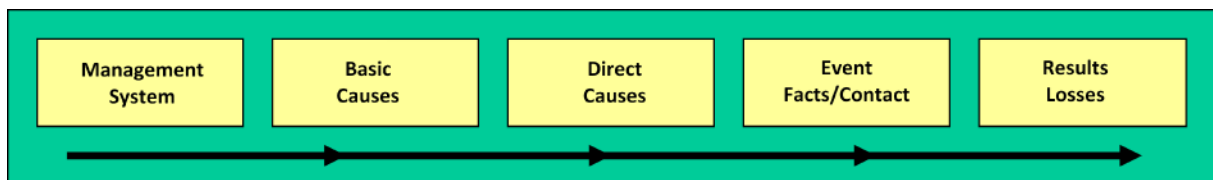
Unwanted Events: events that lead, or could lead, to unwanted results: harm or loss to people, property, environment or business.

Accident: an undesired event that results in harm or loss to people, property, environment or business.

Incident: an undesired event which, under slightly different circumstances, could result in harm or loss to people, property, environment or business.

The Model

The model on which our unwanted event investigation system is based is shown below. Originally this "domino model" was set up by Heinrich/Lateiner but was upgraded by Frank E. Bird, Jr. in the late sixties of last century.



This "loss causation" model is a simplified representation of real life situation. For communication purpose, however, it contains a powerful message: success or non-success is related to the quality of the management system! If the intention of the management system is to deliver success, then loss producing events may indicate failure of that system.

Please be aware of the fact that when we mention the "management system" this is not solely related to the persons whom we normally refer to as "managers". Within the management system all personnel work together to obtain desired results: managers, staff, supervisory and operational personnel.

I. Purpose

The prevention of unwanted events is one of the main tasks of any manager in his/her department and a key priority within our company. Despite all preventive measures, however, incidents can still occur. When this happens, priority must be given to any victims. Measures should be taken to prevent a possible second (similar) incident and to restart production processes as quickly as safely possible. In certain cases an analysis must be done to uncover the causes of the event to prevent recurrence in the future.

In principle, all unwanted events should be investigated to at least determine the potential risk of recurrence. Not all incidents, however, should be analyzed to determine their (root) causes. The type of event, the actual results and the potential effect (= risk), these are all part of the process to decide whether an analysis will be necessary - see table 3 under IV Analysis.



Accurate and timely investigation should take place to:

- collect facts concerning the event
- establish, based on the facts, the risk of recurrence and what the consequences then might be ("risk classification")
- depending on the risk classification, to allow analysis of possible causes for taking preventive measures
- to meet the requirements set by governments.
- recover any insurance payments as quickly as possible
- establish the actual cost to production
- capture and register correct and detailed information in case of possible future court action
- to determine the effectiveness of our management system and related activities

To record data, carry out cause analysis, generate and manage remedial actions, we use the software program UEI. Within the operation of the UEI software, there are three important roles:

- Event Owner - the person with the final responsibility of an "event", including all remedial actions
- Action Owner - the person responsible to ensure that an action is properly done and on time
- Facilitator - the person designated to carry out or lead the cause analysis

II. Reporting and Investigation

Unwanted events to be reported and investigated are:

- fatal accidents
- events resulting in workdays lost
- medical treatment accidents
- restricted work accidents
- vehicle accidents
- fires and explosions
- material damage above € xx
- damage to tools over € xx
- loss of material over € xx
- cases of (suspected) occupational illness
- near-accidents (events that could result in serious harm, injury or loss)
- crime (burglary, theft, etc.)
- accidents involving contractor or third party personnel
- environmental incidents (above threshold value)
- product accidents (possibly resulting product liability claims)
- customer complaints
- environmental incidents with possibility to surpass legal limits
- any other unwanted event that could have a serious negative influence on company image

Each unwanted event will be assigned to an "Event Owner" with vested interest. Normally this will be the head of the department where the unwanted event occurred.



III. Risk Classification

Risk classification is done by making an assessment regarding:

- the potential risk of recurrence (the "failure rate") of the same or a similar unwanted event
- the likely or possible consequences (or "result") of the unwanted event when it happens again under the same or slightly different circumstances

The failure rate is divided into 5 categories 1 to 5, as indicated in the table below. Please note that the highest failure rate is at the top of the table, the lowest failure rate at the bottom.

5	Several times a year
4	1 time per year
3	1 time per 2 years
2	1 time per 5 years
1	Less than 1 time per 5

Table 1- Failure rate



The possible consequences are also divided into 5 categories A to E, as indicated in the table below. Please note that the most severe consequence is at the top of the table, the slightest at the bottom.

E	Safety	Multiple deaths
	Environment	Extensive excess of allowed emission levels. Extensive damage to the environment. Major public concerns and damage.
	Material Damage	> € 1,000,000
	Company Image	Extensive company image degradation.
D	Safety	Death of individual. Permanent disability. Serious injury of many.
	Environment	Severe excess of allowed emission levels. Damage to environment. Corrective measures required outside company boundaries.
	Material Damage	€ 100,000 to 1,000,000
	Company Image	Serious company image degradation.
C	Safety	Non-permanent serious injury to individual. Workdays lost. Restricted work. Minor injury to many.
	Environment	Repeated slight excess of allowed emission limits. Limited damage to environment outside company boundaries.
	Material Damage	€ 10,000 to 100,000
	Company Image	Average company image degradation.
B	Safety	Non-permanent light injury to individual. Restricted work. Pain or injury several people.
	Environment	Slight excess of allowed emissions limits. Non-permanent damage to environment.
	Material Damage	€ 1000 to 10,000
	Company Image	Little company image degradation.
A	Safety	Pain or injury to individual. First Aid
	Environment	Emissions or pollution below allowable limits. Within company boundaries.
	Material Damage	< € 1,000
	Company Image	No company image degradation.

Table 2 – possible consequences

The risk classification is a combination of failure rate and possible consequence and is therefore expressed in a number and a letter, such as 3C, 2A, 5B and so on.



IV. Cause Analysis

The decision to carry out a cause analysis will be taken by the Event Owner in communication with the Safety Officer and the person(s) authorized to carry out the analysis (Facilitator). Prior to carrying out the analysis a decision shall be made whether to carry out the analysis through a team effort and, if so, which functions shall take part in such team.

The analysis will be executed by or, in case of a team effort, under the direction of an authorized person.

Persons authorized to carry out or facilitate cause analyses are:

- (n a m e)
- (n a m e)

Cause analysis shall at least take place concerning unwanted events falling in any of the highlighted risk classes identified in the table below to have a risk classification of XX and XX or higher.

Potential Consequence	A	B	C	D	E
	Risk Class				
Failure rate					
5	5A	5B	5C	5D	5E
4	4A	4B	4C	4D	4E
3	3A	3B	3C	3D	3E
2	2A	2B	2C	2D	2E
1	1A	1B	1C	1D	1E

Table 3 – Risk Classification

V. Responsibilities for Investigation and Analysis

A. Senior manager

- designates responsibilities for developing and implementing the unwanted event investigation system
- provides the necessary resources such that designated employees can perform their duties in a correct and efficient manner
- takes part in the investigation and analysis of unwanted events as necessary or desirable, based on risk classification or otherwise



B. HSE Coordinator

- ensures that the relevant department heads and supervisors receive necessary training regarding unwanted event investigation and analysis
- periodically reviews the operation of the unwanted event investigation program, quantitatively as well as qualitatively
- takes part in the investigation and analysis of unwanted events as necessary or desirable, based on risk classification or otherwise

C. Analysis by authorized person(s) - Facilitator

- where this is considered necessary or desirable, based on risk classification or otherwise, carries out or facilitates analysis of unwanted events with the aim of identifying causes and generating preventive actions
- maintains, as necessary, his/her knowledge concerning the cause analysis of unwanted events

D. Department heads

- ensure proper unwanted event investigation training of supervisors in their department
- ensure that unwanted events in their departments are properly reported and investigated
- assist supervisors as needed in the investigation and analysis and the implementation and follow-up of remedial actions
- positively support reporting and investigation of unwanted events
- assess the quality of event reports made in their the department
- take part in the investigation and analysis of unwanted events as necessary or desirable, based on risk classification or otherwise

E. Supervisors

- as soon as possible start with the investigation of unwanted events in their area of responsibility, including those involving contractor personnel or on equipment that is not owned by the company
- evaluate the severity of unwanted event
- as soon as possible make a verbal report to his/her department head
- complete, as far as possible, the unwanted event report form

F. Employees

- immediately report unwanted events to their supervisor
- take part in the investigation and analysis of unwanted events as necessary or desirable, based on risk classification or otherwise



When applicable and depending on his/her assigned role in the investigation and analysis of unwanted events following responsibilities apply:

G. Event Owner

- ensures the smooth deployment of the entire process related to unwanted events assigned to him/her
- if necessary, initiates a cause analysis to be carried out
- assists the person authorized to carry out cause analysis of events assigned to him/her
- supervises and ensures the timely and proper implementation of remedial actions related to the unwanted events assigned to him/her

H. Action Owner

- ensures the timely and proper implementation performance of actions assigned to him/her
- communicates with the Event Owner on the progress of actions assigned to him/her, in particular where it concerns any changes regarding the action or the time period for execution

VI. Training

Conducting good investigations of unwanted events and follow-up of remedial actions is important and requires some basic knowledge. Supervisors and senior managers should be trained or instructed in:

- investigation techniques and methods of reporting, including assessing the quality of event reports
- their responsibilities regarding investigation, analysis, development of remedial actions and their follow-up

VII. Investigation Team

Depending on the risk class of the unwanted event - the possibility of serious consequences - the Event Owner may request an Investigation Team to:

- assist the supervisor in the investigation of the unwanted event
- to carry out, under facilitation of the authorized person (Facilitator), the cause analysis to uncover the causes that have led to unwanted event
- assist the supervisor in reporting and preparation of remedial actions



Team members

The supervisor(s) of the department(s) concerned will always be part of the investigation team. Depending on the severity of the unwanted event or the possibility of serious damage or injury, the department head(s), the Safety manager, the Facilitator, involved employees, contractor and/or client representative(s) and/or others may participate in the investigation and analysis of:

- all fatal accidents
- all accidents with serious injuries (accidents, absenteeism and accidents requiring more than one visit to the doctor, the initial treatment included)
- all fires and explosions
- all material damages over € XX
- all environmental events with emissions above the allowed limit
- all near-accidents with the possibility of serious damage or injuries
- all near-accidents involving new products, new processes / equipment, with the possibility of damage above € xx

The Director

The director will be involved in the on location investigation of:

- all fatal accidents
- all injury accidents that require hospitalization
- all fires and explosions
- any material damage and other incidents involving damage above € xx
- all near-accidents with the possibility of serious damage or injuries
- all near-accidents misses involving new products, new processes/equipment, with the possibility of damages above € XX

The director will also chair a monthly meeting with all department heads to review and discuss all unwanted events mentioned under Section II "Reporting and Investigation". These discussions and any decisions taken should be recorded in the minutes of these meetings.

VIII. Contractor Unwanted events/Incidents

Unwanted events involving contractor personnel should be investigated by a project team including at least:

- the supervisor of the department where the unwanted event occurred
- the supervisor under whose responsibility the work of the contractor took place
- the supervisor of the contractor



IX. Timeliness of the Investigation

Investigation of unwanted events must take place as soon as possible after the unwanted event occurred and as soon as emergency help allows. Any unnecessary delay may:

- change the circumstances under which the unwanted event occurred
- result in loss of evidence
- make it harder to determine the immediate and basic or "root" causes of the unwanted event

The only reason that justifies postponing the investigation is provide assistance to any victims and securing the safety of the area.

X. Investigation Method

As soon as possible after the unwanted event has occurred and after providing of emergency help to any victims, the investigation should include:

- taking notes about what happened
- taking note of what was done and by whom, before, during and directly after the unwanted event
- securing names and addresses of possible witnesses and collecting testimonies
- taking photographs of the unwanted event location or making drawings
- securing any physical evidence considered relevant

(If it is necessary to ask "why" questions, wait till all factual information is collected.)

- start the investigation
- fill out the unwanted event report form

If necessary further material should be collected to support the unwanted event investigation and reporting, including copies of procedures, articles, etc.

Photographs, drawings

If possible, photographs should be taken of the unwanted event scene and of relevant objects/materials. If words are not sufficient to describe the unwanted event, drawings should be made of the location, including size measurements, distances, etc.

Testimonies

Collect written statements, if possibly signed, from victims and witnesses of all unwanted events resulting in:

- serious injury
- serious damage
- significant environmental damage
- significant loss of goods/materials



These statements should preferably be collected by the immediate supervisor. If not possible, this can also be done by the Safety manager or an officer of the Human Resources department. The signature on the statements is desirable but not essential. The interview to obtain these statements should be kept as private as possible and as soon as possible after the unwanted event took place.

The interview should focus on what actually happened.

Investigation of vehicle unwanted events

If a vehicle is involved in an unwanted event:

- if possible: assist in helping any victims
- contact local authorities as soon as possible
- if possible: take pictures of the event location
- do not move the vehicle, unless required to maintain safety of other traffic
- do not interfere with professional emergency services
- contact your supervisor as soon as this is possible
- collect as much information as possible to properly fill out the vehicle event form

END