

ACCIDENT INVESTIGATION PROTOCOL

EXAMPLE

This document is given for setting up a protocol for accident/incident investigation and - analysis. 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 so that the protocol is tailored to their needs, determined by the general and specific legislation and other internal or external requirements.

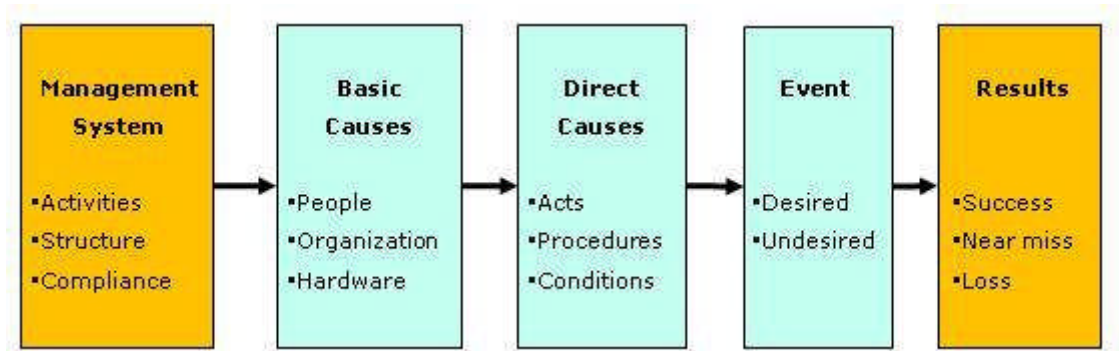
Definitions

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. Also called: "near-accident".

The Model

The model on which our accident 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 "accident causation" model is a simplified 2-dimensional 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 (accidents/incidents) may indicate failure of that system. Please be aware of the fact that when we mention the "management system" it is not solely related to the persons whom we normally refer to as "managers". Within the management system all personnel works together to obtain desired results - this includes managers, staff, supervisory and operational personnel.

I. Purpose

The prevention of accidents / incidents (injury, damage, environmental incidents, production interruptions, etc.) 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 possible. In certain cases an analysis must be done to uncover the causes of the incident to take action to prevent recurrence in the future.

In principle, all incidents should be investigated to at least determine the potential risk of recurrence. Not all incidents, however, should be analyzed to determine their causes. The type of event, the actual results and the potential effect (= risk) 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 incident
- 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 and related management activities

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

- Event Owner - the person who has the final responsibility on an "event" (an accident or incident is an "event")
- Action Owner - the person who must ensure that an action is properly done and on time
- Facilitator - The person designated to lead the analysis

II. Reporting and Investigation

Accidents and incidents should be reported and investigated are:

- fatal accidents
- accident resulting in workdays lost
- medical treatment accidents
- restricted work accidents
- vehicle accidents
- fire and explosion
- material damage above € 1.000, --
- damage to tools over € 1.000, --
- loss of material over € 1.000, --
- 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)

Each accident/incident will be assigned to a person with (sufficient) end responsibility: the "Event Owner". Normally this will be the head of the department where the accident/incident took place.

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 accident/incident
- the likely or possible consequences (or "result") of the accident/incident 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 years

Table 1

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

The risk classification is always a combination of failure rate and effect 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. Prior to carrying out the analysis a decision shall be made whether a team effort will be beneficial and which functions shall take part in such a 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:

- (name)
- (name)

Analysis of causes shall at least take place concerning accident/incidents falling in any of the colored risk classes identified in the table below:

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

V. Responsibilities for Investigation and Analysis

A. Management

- designates responsibilities for developing and implementing the accident 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 accidents/incidents as necessary or desirable, based on risk classification or otherwise

B. HSE Coordinator

- ensures that the relevant department heads and supervisors receive necessary training on accident investigation and analysis
- periodically reviews the operation of the accident/incident investigation program, quantitatively as well as qualitatively
- takes part in the investigation and analysis of accidents/incidents as necessary or desirable, based on risk classification or otherwise

C. Analysis by authorized person(s)

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

D. Department heads

- ensure proper accident/incident investigation training of supervisors in their department
- ensure that accidents 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 accidents/incidents
- assess the quality of accident reports made in their the department
- take part in the investigation and analysis of accidents/incidents as necessary or desirable, based on risk classification or otherwise

E. Supervisors

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

F. Employees

- immediately report accidents/incidents to their supervisor
- take part in the investigation and analysis of accidents/incidents 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 accidents/incidents following responsibilities apply:

G. Event Owner

- ensures the smooth deployment of the entire process related to accidents/incidents assigned to him/her
- if necessary, initiates the execution of an analysis of causes
- assists the person authorized to carry out cause analysis of accidents/incidents assigned to him/her
- supervises and ensures the timely and proper implementation of remedial actions related to the accidents/incidents 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 the action or the time period for execution

VI. Training

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

- investigation techniques and methods of reporting, including assessing the quality of accident reports
- their responsibilities regarding investigation and analysis

VII. Investigation Team

Depending on the risk class of the accident/incident - the possibility of serious damage or injuries - the Department Head or Event Owner may set up an Investigation Team to:

- assist the supervisor in the investigation of the accident/incident
- assist the supervisor in reporting and preparation of remedial action
- to uncover, under facilitation of the authorized, the causes that have led to accident/incident

Team members

The supervisor(s) of the department(s) concerned will always be part of the investigation team. Depending on the severity of the accident/incident or the possibility of serious damage or injury, the department head(s), the HSE manager or coordinator, the person authorized to carry out cause analysis, 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 € 5.000, --
- all environmental accidents 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 € 5.000, --

The Director

The director or his representative 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 € 25.000, --
- 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 € 50,000

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

VIII. Contractor Accidents/Incidents

Accidents/ incidents involving contractor personnel should be investigated by a project team including at least:

- the supervisor of the department where the accident 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 accidents/incidents must take place as soon as possible after the accident/incident take place and as soon as emergency help allows. Any unnecessary delay may:

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

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 accident/incident has occurred and after providing of emergency help to any victims:

- take note what happened
- take what was done and by whom, before, during and directly after the accident/incident
- secure names and addresses of possible witnesses, collect testimonies
- take photographs of the accident/incident location or make drawings
- secure any physical evidence considered relevant

If it is necessary to "why" questions, then wait for them to all factual information is collected.

- start the investigation
- fill out the accident report form

If necessary collect further material to support the accident investigation and reporting, including copies of procedures, articles, etc.

Photographs, drawings

If possible, photographs should be taken from the accident/incident scene and of relevant objects/materials. If words are not sufficient to describe the accident, 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 accidents 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 HSE coordinator 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 accident/incident took place. The interview should focus on what actually happened.

Investigation of vehicle accidents

If a vehicle is involved in an accident/incident:

- if possible: assist in helping any victims
- if possible: take pictures of the accident/incident location
- do not move the vehicle, unless required to maintain the 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 accident form

END