

# Accident & Incident Investigation

An overview of investigating  
accident & incidents  
for line managers &  
supervisors

Carrying out your own health and safety investigations will provide you with a deeper understanding of the risks associated with your work activities. Blaming individuals is ultimately fruitless and sustains the myth that accidents and cases of ill health are unavoidable when the opposite is true.

## **SETTING THE SCENE**

## WHY INVESTIGATE ACCIDENTS?

### The drivers that make investigation important

- Compliance with the law
  - The law requires that we manage health & safety risks effectively; this includes monitoring health & safety performance
- Managing and controlling financial losses
  - Accident and incidents cost time, money & resources; only a small fraction of accident losses are covered by insurance
- Compliance with moral expectations
  - Accidents cause pain, suffering and distress to workers and their families; our stake holders expect us to prevent this

## WHO SHOULD INVESTIGATE ACCIDENTS?

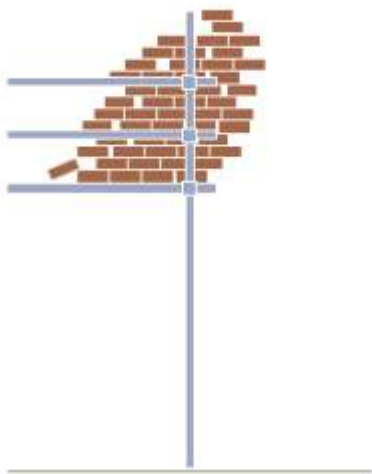
Who needs to be involved and what skills do they need

- Monitoring health & safety (including accident investigation) is a line management responsibility
- Investigations should involve both managers and the workforce. Potential partners in an investigation are:
  - Senior Managers, Line Managers & Supervisors
  - Health & Safety Advisers & Specialist Technical Advisers
  - Union Safety Representatives & Employee Representatives
- A partnership will combine practical knowledge & experience.
  - Health & safety good practice
  - Standards & legal requirements
  - Investigative skills – interviewing & collecting data
  - Critically evaluating evidence
- Sufficient time and resources are needed to carry out an investigation

## WHAT SHOULD BE INVESTIGATED

What adverse event should be investigated?

UNDESIRABLE	NEAR MISS	ACCIDENT
a set of conditions or circumstances that have the potential to cause injury or ill health	an event that, while not causing harm, has the potential to cause injury or ill health	an event that results in injury or ill health



Having been notified of an adverse event and been given basic information on what happened, you must decide whether it should be investigated and if so, in what depth. It is the potential consequences and the likelihood of the adverse event recurring that should determine the level of investigation, not simply the injury or ill health suffered.

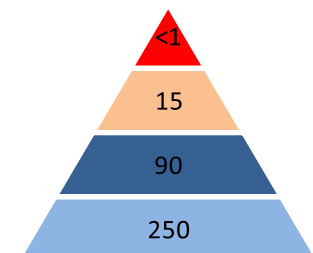
## **LEVEL OF INVESTIGATION**

## LEVEL OF INVESTIGATION

How much effort to devote to an investigation

	MINOR	SERIOUS	MAJOR	FATAL
RARE	MINIMAL	LOW	MEDIUM	HIGH
UNLIKELY	MINIMAL	LOW	MEDIUM	HIGH
POSSIBLE	LOW	MEDIUM	HIGH	HIGH
LIKELY	LOW	MEDIUM	HIGH	HIGH
CERTAIN	LOW	MEDIUM	HIGH	HIGH

- Balance the effort expended against the potential benefits. Consider
  - **LIKELIHOOD** that the event will happen again
  - Likely **WORSE CONSEQUENCE** if it does



## LEVEL OF INVESTIGATION

How deep should the investigation drill?

LEVEL	WHO	IMMEDIATE Premises, plant & substances, procedures, people	UNDERLYING Planning, risk assessment	UNDERLYING Organisation, monitoring, review	ROOT Policy issues, resource allocation
MINIMAL	DEPARTMENT	YES	MAYBE		
LOW	DEPARTMENT	YES	YES	MAYBE	
MEDIUM	HS TEAM	YES	YES	YES	MAYBE
HIGH	HS TEAM / DEPARTMENT	YES	YES	YES	YES

- It is important that accident investigations are clearly delegated
- It is important to set some boundary's on an investigation – otherwise investigations can drag on forever and expand to examine everything in minute detail – for little benefit



## LEVEL OF INVESTIGATION

### What should an investigation achieve?

**The primary purpose of an accident investigation is to improve health & safety performance – it isn't a "prosecution" process**

- Information & insights from an investigation
  - What went wrong and why
  - A snapshot of how work is actually carried out
  - Identification of deficiencies in risk control – and how to improve it
- Benefits from the investigation
  - Prevention of similar accidents
  - Prevention of business losses
  - Improve employee morale
  - Development of useful skills

Accidents have many causes. What may appear to be bad luck (being in the wrong place at the wrong time) can, on analysis, be seen as a chain of failures and errors that lead almost inevitably to the accident.

## **ACCIDENT CAUSES**

## CAUSES OF ACCIDENTS

The simple viewpoint

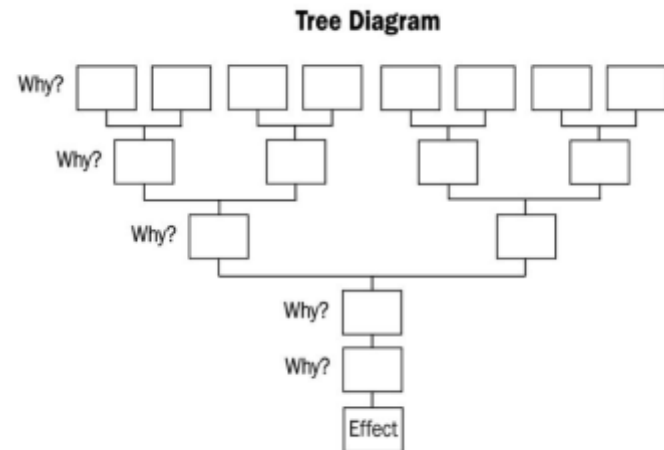
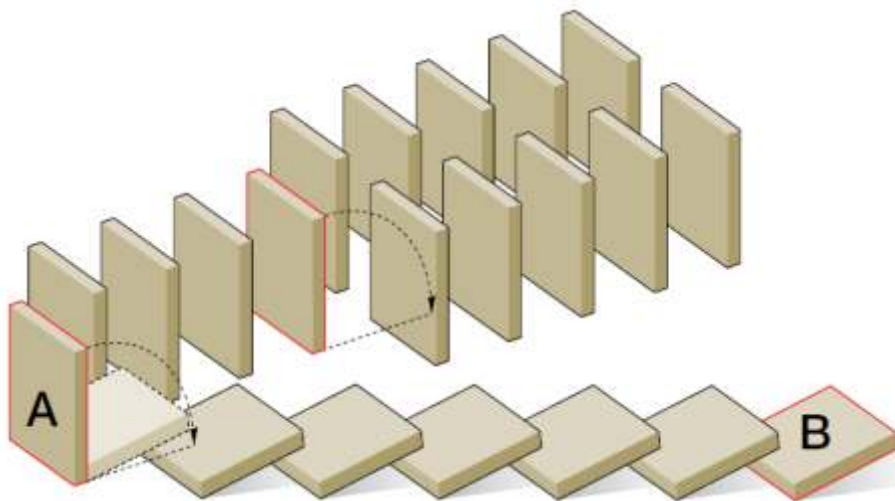


This is a very simplistic way of viewing accidents. If adopted, the investigator would identify and remedy a single immediate cause whilst ignoring many other important factors that might have played a part.

## CAUSES OF ACCIDENTS

### The domino effect

Careful analyses usually shows that accidents have multiple causes; a chain of failures and errors usually lie behind an accident



## CAUSES OF ACCIDENTS

<b>IMMEDIATE CAUSE:</b>	the most obvious reason why an adverse event happens, eg the guard is missing; the employee slips etc. There may be several immediate causes identified in any one adverse event
<b>UNDERLYING CAUSE:</b>	the less obvious 'system' or 'organisational' reason for an adverse event happening, eg pre-start-up machinery checks are not carried out by supervisors; the hazard has not been adequately considered via a suitable and sufficient risk assessment; production pressures are too great etc.
<b>ROOT CAUSE:</b>	an initiating event or failing from which all other causes or failings spring. Root causes are generally management, planning or organisational failings

An effective investigation requires a methodical, structured approach to information gathering, collation and analysis.

In general, accidents should be investigated and analysed as soon as possible. This is not simply good practice; it is common sense – memory is best and motivation greatest immediately after an accident.

## **THE ACCIDENT INVESTIGATION**

## FIRST THINGS FIRST

- Emergency response
  - Take any necessary emergency action (eg provide first aid, etc.)
  - Make the scene of the accident safe – we don't need any more accidents to investigate
- Initial report
  - Preserve the scene / equipment / materials as far as possible
  - Note the name of the people and equipment involved and the names of any potential witnesses
  - Report the event – the system will decide the level of investigation required and will allocate it someone

An investigation will involve an analysis of all the information available, physical (the scene of the incident), verbal (the accounts of witnesses) and written (risk assessments, procedures, instructions, job guides etc.), to identify what went wrong and determine what steps must be taken to prevent the accident from happening again.

## **COLLECTING THE FACTS**



## COLLECTING FACTS

### The right approach and state of mind

- Throughout your investigation be open, honest & objective
- Set aside preconceived ideas about the process, equipment or people involved – follow the facts
- Be curious and enquiring; explore all reasonable lines of enquiry
- Be wary of blaming individuals – your investigation is not a “prosecution”
  - If you attempt to apportion blame, then individuals will become defensive and uncooperative



## COLLECTING FACTS

### Observing the accident scene

The accident site should be inspected as soon as possible after the accident. Particular attention should be paid to:

- The positions of people at the time (useful for identifying possible witnesses)
- Tools, equipment & plant involved in the accident; Preserve faulty items so that you can examine them at your leisure later
- Personal protective equipment involved in the accident; Preserve faulty items so that you can examine them at your leisure later
- The condition of the premises at the time of the accident

Record what you find

- Use notes, photographs, sketches, floor plans to record what you find
- Hold on to any faulty items if you can

# COLLECTING FACTS

## Interviewing witnesses

Witnesses should be interviewed as soon as possible after the accident

- Perform interviews in a location where the witness is likely to be comfortable

During the interview

- Adopt a suitable interview style; place an emphasis on preventing further accidents rather than allocating blame
- Questioning shouldn't be aggressive or intimidating; this will create a blame culture and make witnesses defensive
- Allow the witness to give their account of what happened using their own words; it's their report not yours

Record what you are told

- Keep notes of what witnesses tell you – at the end of an interview go through the main points to make sure they are recorded correctly; distinguish between facts, belief and speculation
- For more important accidents, get witnesses to write a witness statement in their own words

## COLLECTING FACTS

### Checking the paperwork

- Check the relevant documents. You may need to check their validity using interviews. Pay particular attention to:
  - Written instructions & procedures
  - Risk assessments
- The main points to look for are:
  - Were they adequate / satisfactory?
  - Were they distributed to employees?
  - Were people trained / competent to follow them?
  - Were they followed on this occasion / every occasion?
- Check past accident & incidents records for similar events

There are many tools and techniques for structuring the investigation, analysing adverse events, and identifying root causes. HSE does not endorse any one method – it is for you to choose which techniques suit your company. These techniques are tools, not an end in themselves.

## **MAKING SENSE OF IT ALL**

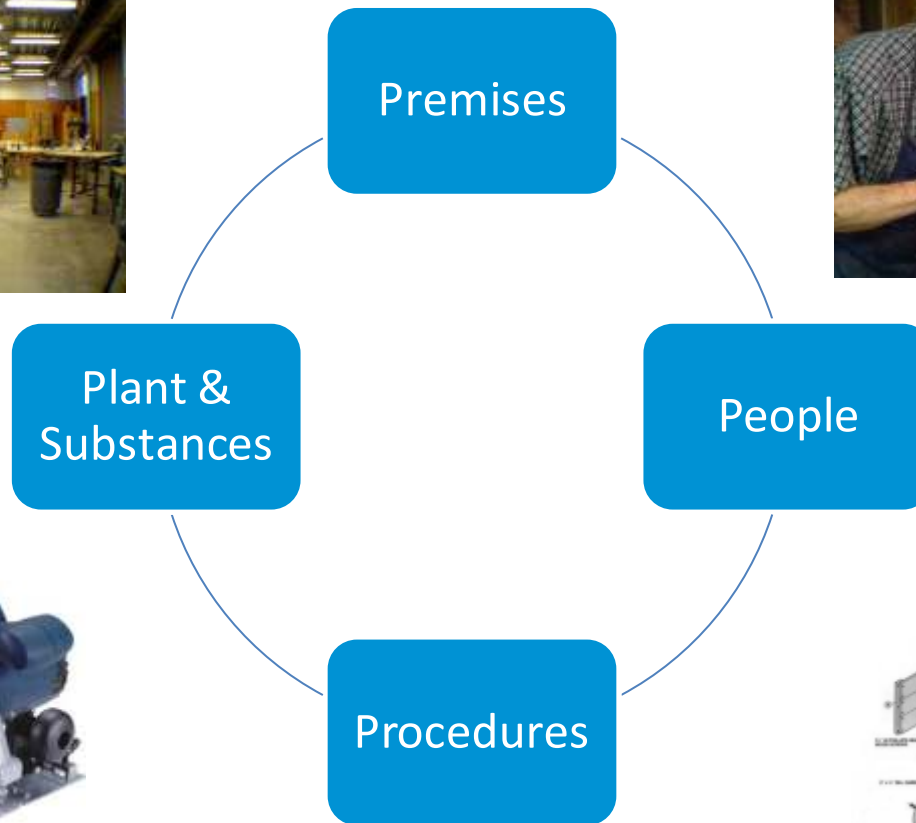
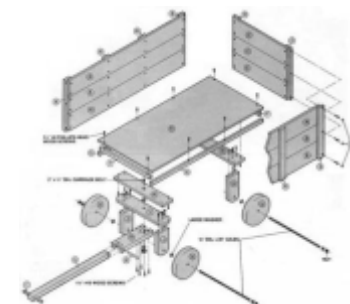
## MAKING SENSE OF IT ALL

### Analysis of the evidence to identify causes

- In practice, some evidence analysis will take place as you gather the evidence; this will reveal reasonable lines of enquiry
- At some point, you will have to sit down and identify the immediate and underlying causes
- This doesn't have to be a lone activity; talking it through with someone else can help you order your thoughts and evidence
- There is no definitive HSE approved investigation tool kit for doing this; two possibilities are presented here, but there are many more



## MAKING SENSE OF IT ALL Immediate causes – from HSG65



## MAKING SENSE OF IT ALL

### Immediate causes – from HSG65

PREMISES	PLANT & SUBSTANCES	PROCEDURE	PEOPLE
Not a factor	Not a factor	Correct procedure in use	Behaviour not a significant factor
Adequate, but not used	Adequate controls, but not used	Procedure devised, but not used	Suitable, but not competent
Adequate once, but not maintained	Adequate controls once, but not maintained	Procedure devised & used, but now lapsed	Suitable & competent, but did the wrong thing
Never adequate	Adequate controls never provided	Procedure never devised	Unsuitable for the job

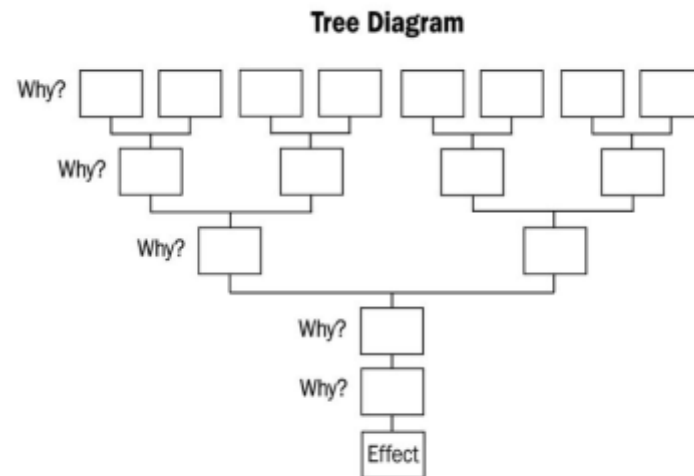


# MAKING SENSE OF THE EVIDENCE

## Underlying causes – HSG65 or HSG245

Both options use a “fault tree” to explore causes

- HSG245 Investigating Accidents & Incidents - construct a fault tree from scratch
- HSG65 Successful Health & Safety Management – fault tree constructed and you follow the trail



The findings of the investigation will form the basis of an action plan to prevent the accident or incident from happening again and for improving your overall management of risk

## **ACTING ON THE RESULTS**

## Acting on the Investigation Findings

- An action plan with SMART objectives to address the causes (specific, measurable, achievable, realistic & time bound)
  - Communicate the action plan to everyone who needs to know
  - Monitor and track completion of the action plan
- Provide feedback to all involved to ensure that the findings & recommendations are correct, address the important issues and are realistic
- Review the relevant risk assessments and revise them if necessary
- The findings may have lessons that could be applied elsewhere (eg risk assessment standards, presentation of procedures, etc) – make sure these are passed on

## Acting on the Investigation Findings An example action plan pro forma

### Recommendations / Action List

#	Recommendations	Actions taken	Priority	Allocated to	Target completion	Actual completion
1			Choose an item.	Click here to enter text.	12 April 2012	Click here to enter a date.
2			Choose an item.	Click here to enter text.	19 April 2012	Click here to enter a date.
3			Choose an item.	Click here to enter text.	19 April 2012	Click here to enter a date.

#	Recommendations	Actions taken	Priority	Allocated to	Target completion	Actual completion
	See also recommendation #1 – creating and implementing formal arrangements.					
6	No fire action notices are displayed in the building. The UHSE will report this to Estates for action. It is recommended that an action poster be posted next to each call point.	Report made to Estates. Request made to post a fire action notice adjacent to each call point. Work Request number is <b>218806</b>	Medium	UHSA to report to Estates	25 May 2012	25 May 2012

**END**

The HSE has published guidance on accident investigation, as well as a wide range of documents that set out examples of good practice in various workplaces. Even better, electronic copies are free of charge.

## **REFERENCES**

## ACCIDENT INVESTIGATION

### Context of investigation and data analysis

“**Successful Health & Safety Management**”. HSG65.

Published by the HSE

- Contains information on managing health & safety – including accident investigation & an accident analysis “key”
- Can be downloaded for free from the HSE web site at <http://www.hse.gov.uk/index.htm> (search for HSG245)
  - If you find this guide to be a “bit heavy” then try “**Managing health & safety. Five steps to success**”. INDG275



## ACCIDENT INVESTIGATION

### A one stop guide for accident investigators

**“Investigating accidents and incidents.** A workbook for employers, unions, safety representatives and safety professionals”. HSG245. Published by the HSE

- Contains an information gathering and collation tool kit – use this as a guide to direct your lines of enquiry
- Contains instructions on how to construct a cause tree.
- Can be downloaded for free from the HSE web site at <http://www.hse.gov.uk/index.htm> (search for HSG245)

