

# Accident Investigations in Practice – Part 2

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# Accident Investigations in Practice

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- Starting an investigation
- HSG245 – Four stage investigation
- Investigation review
- Investigation tips
- Ill-Health investigations

# Starting an Investigation

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- Health and safety policy sets the standard you want to achieve
- Suitable procedure explains how you want to achieve it
- Guidance HSG 245

# Initial Actions

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- ***Emergency response:***
  - Prompt emergency action (eg first aid)
  - Make the area safe (in some cases this may need to be done first)

# Initial Report

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- preserve the scene
- note the names of the people, equipment involved and the names of the witnesses
- report the adverse event to the person responsible for health and safety who will decide what further action (if any) is needed

# Initial Assessment and Investigation Response



- Report the adverse event to the regulatory authority if appropriate.
  - RIDDOR
    - Fataals, major injuries, dangerous occurrences
  - COMAH
    - Major accident
  - Ill-Health – Reported on diagnoses
- Reported “**forthwith**” - Immediately

# The Decision to Investigate?



Likelihood of recurrence	Potential worst consequence of adverse event			
	Minor	Serious	Major	Fatal
Certain	Yellow	Brown	Red	Red
Likely	Yellow	Brown	Red	Red
Possible	Yellow	Brown	Red	Red
Unlikely	Blue	Yellow	Brown	Red
Rare	Blue	Yellow	Brown	Red

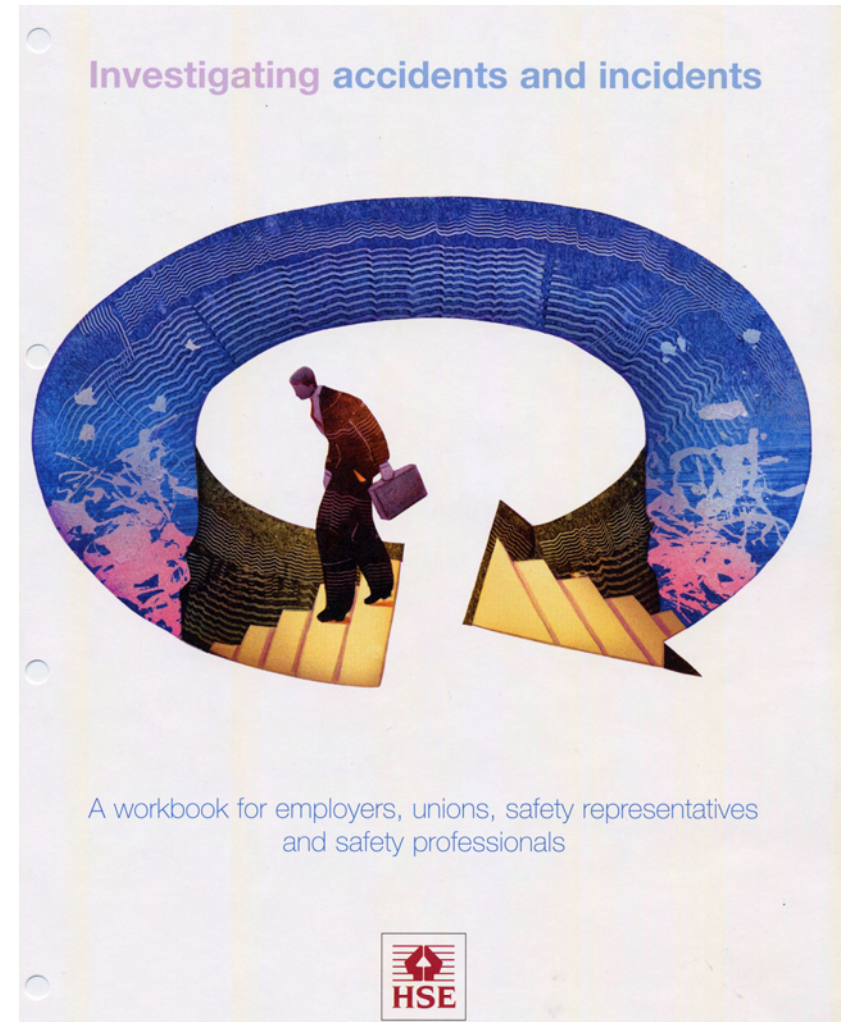
# Investigation - Methods

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- Wide variety of methods
  - ECFA, 3CA, Fault Tree analysis etc
- HSE doesn't endorse any one method
- Must be suitable for purpose
- SMEs – difficult to develop an expertise

# Investigation – Methods

- HSE guidance - Four step investigation
- Question set based on investigation form
- Analysis tools



# Four Step Investigation

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- *Step one* - Gathering the information
- *Step two* - Analysing the information
- *Step three* – Identifying suitable risk control measures
- *Step four* – The action plan and its implementation

# *Step one –* **Gathering the information**

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- Find out what happened and what conditions and actions influenced the adverse event.
- Begin straight away, or as soon as practicable.
- Talk to everyone who saw or know what happened or led to the adverse event

# ***Step One –*** **Gathering the Information**

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- Collect all available and relevant information.
- That includes:
  - opinions, experiences, observations
  - Process drawings, sketches, measurements, photographs
  - check sheets, procedures, permits-to-work, method statements, risk assessments
  - details of the environmental conditions at the time etc.

# Gathering Detailed Information – Where, When and Who?



- 1 Where and when did the adverse event happen?
- 2 Who was injured/suffered ill health or was otherwise involved with the adverse event?

# Gathering Detailed Information – How & What



- 3 How did the adverse event happen? Note any equipment involved
- 4 What activities were being carried out at the time?
- 5 Was there anything unusual or different about the working conditions?
- 6 Were there adequate safe working procedures and were they followed?

# Gathering Detailed Information

## – How & What

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- 7 What injuries or ill health effects, if any, were caused?
- 8 If there was an injury, how did it occur and what caused it?
- 9 Was the risk known? If so, why wasn't it controlled? If not, why not?
- 10 Did the organisation and arrangement of the work influence the adverse event?

# Gathering Detailed Information

## – How & What

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- 11 Was maintenance and cleaning sufficient? If not, explain why not.
- 12 Were the people involved competent and suitable?
- 13 Did the workplace layout influence the adverse event?
- 14 Did the nature or shape of the materials influence the adverse event?

# Gathering Detailed Information

## – How & What

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- 15 Did difficulties using the plant and equipment influence the adverse event?
- 16 Was the safety equipment sufficient?
- 17 Did other conditions influence the adverse event?

# *Step Two –* **Analysing the Information**

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- Analysis of all information available
  - Physical – scene of incident
  - Verbal – accounts of witnesses
  - Written – documents
    - Process drawings
    - Risk assessments
    - Permits to work
    - Procedures
    - Instructions, job guides etc.

# ***Step two –*** **Analysing the information**

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- What were the immediate, underlying and root causes?
- Method of analysis
  - Events & Causal Factor Analysis (ECFA)
  - Timeline
  - Why?..... because
  - Question set / Checklist Method
    - (Place, Plant, Procedures and People)
- What happened and why?

# Why Method

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# Checklist Method

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# *Step Two –* **Analysing the Information**

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- Choose the method which suits your organisation best
- Analysis needs to be:
  - Methodical,
  - Structured
  - Thorough
  - Open and transparent
  - Question everything until satisfied

## ***Step Two –*** **Analysing the Information**

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- Job Factors
- Human Factors
- Organisational Factors
- Plant & Equipment Factors

# ***Step Three* – Identify Suitable Risk Control Measures**



- What risk control measures are needed/recommended?
  - What worked, what failed
- Do similar risks exist elsewhere? If so, what and where?
- Have similar adverse events happened before? Give details.

## ***Step Four* – The Action Plan and its Implementation**

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- Which risk control measures should be implemented in the short and long term?
- Which risk assessments and safe working procedures need to be reviewed and updated?
- Have the details of adverse event and the investigation findings been recorded and analysed?
  - Are there any trends or common causes which suggest the need for further investigation?
  - What did the adverse event cost?

# Investigation Review

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- Do we know how and why things went wrong
- Do we know how people can be exposed to substances or conditions that may affect their health
- Have we exhausted all reasonable lines of enquiry
- Have we identified the immediate, underlying and root causes of the adverse event

# Investigation Review

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- Do we know if our risk control measures are adequate
- Do we have an action plan to implement improvements or additional control measures
- Has it given a true snapshot of what really happens at your site - and how work is really done
- Do not forget - have we praised what went well
- Can we learn anything new about the investigation process or our procedures

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# Any Questions

# Investigation Tips

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- Where to start your investigation
  - Time of Adverse Event?
  - Prior to Adverse Event?
- Time of Adverse Event
  - Limit scope of investigation
- Prior to Adverse Event
  - Snapshot of reality
  - What was it like before it went wrong
  - Follow the sequence of events to failure

# Investigation Tips

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- Witness statements
  - Purpose
    - Solicitors, insurance companies
  - Structured
  - Guidelines
    - Talk through, make notes
    - Listen
    - Check timelines
    - Record in their words

# Investigation Tips

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- Reliability of Evidence
  - Witness statements
    - Cognitive & investigation videos
    - Low level of reliability
  - Documentary Evidence
    - Can be scrutinised & challenged
    - 100% reliable
    - Auditable
  - **No record (?), no proof**

# Investigation Tips

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- What if human failings are found
  - Do not ignore them
  - Remember aim to learn lessons & act to prevent reoccurrence
  - Discuss with those involved
  - Identify human failings
  - Remember supervision and monitoring of performance should detect and correct unsafe behaviours.

# Investigation Tips

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- What if human failings are found
  - In an open and honest environment human errors are learning points for everyone at all levels in the organisation
  - If you cannot accept your errors you will never learn to develop further

# Investigation Tips

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- Training, logs and records - poor

“The lack of training or experience of Eurotunnel staff in the management of emergencies was apparent. System failures, coupled with reliance on manually kept records, have made detailed analysis of aspects of the command and control function very difficult.”

# Investigation Tips

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AP

# Investigation Tips

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- Major Accident Incident
  - Record Everything
    - Response
    - Your Investigation
  - **No record (?), no proof**
  - Be accurate in what you record

# Investigation Tips

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- Logs and records

- Quoted in Crown Court by Prosecutor:

*“First hour no structure – appalling”*

- What she actually said

*“First hour – no structure, appalling as always”*

# Investigation Tips

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# Investigation Tips

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# Investigation Tips

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- **“Dynamic Risk Assessments”**
- **ARE NOT ACCEPTABLE FOR ROUTINE WORK**
- **Emergency response only**

# Technology May Change!!!

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# III Health Investigations

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- Informs the employee with information and advice regarding further health surveillance;
- Review relevant risk assessments;
- Review control measures taken to comply with COSHH Reg 7;
- Assigning employee to alternative work; and
- Review the health of other employees who may have been exposed.

# III Health Investigations

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- Are often personal
- You need to identify what individuals do to identify exposures
- May not be possible if you assign to alternative work
- Makes it difficult – but not impossible

# III Health Investigations

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- Some are easy

# III Health Investigations

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- Location can often help
- Allergic skin reaction (allergic dermatitis) on the neck
- Caused by hair dye.

# III Health Investigations

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- History of exposure
- The swelling and erythema on the face is from airborne contact with the sawdust of pine and fir.

# III Health Investigations

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- Asthma is a lot more difficult

# III Health Investigations

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- Asthma –Occupational or not
  - Do they work with any of the agents listed in RIDDOR
  - Chemicals with the risk phrase R42  
“May cause sensitisation by inhalation”
  - Process of elimination
  - Difficult if you have to apply control measures to prevent exposure or assign to alternative work

# Accident Investigations in Practice

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# Any Questions

**END**

