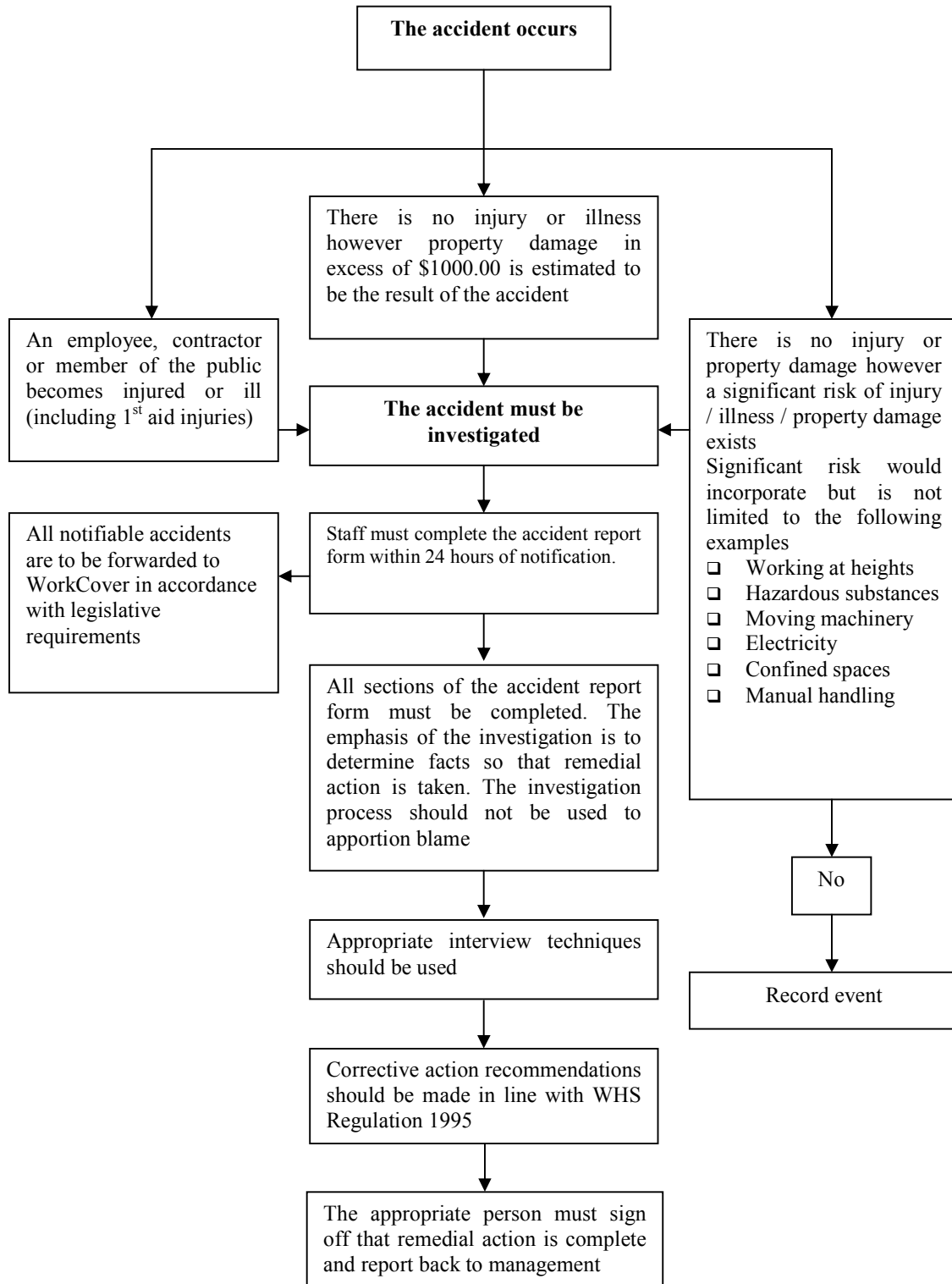


Accident Investigation



Accident Investigation Key Principles

Rationale

The rationale for undertaking accident investigations at _____ is to:

- ✓ Identify the hazards and risks involved in the accident
- ✓ Assess the hazards and risks involved in the accident
- ✓ (As a result of the identification and assessment of the hazards and risks) implement control processes aimed at preventing the same or similar accidents from re-occurring
- ✓ Assign responsibility to _____ staff for the implementation of corrective action
- ✓ Ensure that corrective action has been taken and as part of the overall _____ risk management process
- ✓ Ensure that all relevant facts surrounding an accident (including the general public) are recorded which may then assist _____ in any litigation that may arise from the accident

Accident definition

- An accident is an unplanned or unexpected event or sequence of events that may or may not cause injury or property damage

Injury Causes -v- accident causes

- While there are many things that cause accidents (hazards and risks), it is the transfer of damaging energy that causes injury e.g. mechanical/electrical, chemical, biological, physical (e.g. kinetic) and psychological. Psychological hazards and the body's reaction to work situations (e.g. excessive work pressure) that may result in injury or illness being sustained however the internal transfer of damaging energy is not as obvious or easy to identify.

Hazard – is the danger associated with the object, activity, process, machine operation etc.

Hazard Types

Hazard	Examples
Physical	Manual handling, slips trips and falls, striking an object, overuse / poor posture, temperature etc.
Chemical	Explosives, compressed gasses, flammable liquids, flammable solids, oxidizing agents, poisons, radioactive substances, corrosives and miscellaneous e.g. aerosol cans
Biological	Bacteria, pathogens (other than those classified in the chemical category), animals, diseases that can be passed from animal to man, insects and organic substances such as moulds etc.
Mechanical / Electrical	Mobile plant, moving machinery, unguarded machinery, noise etc. live circuits, static electricity
Psychological	Overwork, lack of recognition, boredom etc.

Risk – is the probability of injury should a person come into contact with the uncontrolled hazard

Risk assessment should consider the following:

Exposure

Dose	How much of the hazard or risk is a person(s) exposed to?
Over what time	How long is the person(s) exposed to the hazard? What is the frequency of exposure to the hazard?
How many people affected	Staff, contractors and the general public

Severity

What are the outcomes of exposure	Fatality, serious injury / illness, minor injury, property damage or near miss
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Factors that contribute to the risk

Are there any human differences / attitudes etc. that could impact upon the outcome of exposure	Physical stature and strength, age, gender, educational level, non-English speaking background, disabled etc.
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Probability

As part of the investigation process an assessment of the probability of re-occurrence is required. When assessing the probability of re-occurrence the following issues should be considered:

- If the hazards or risks are not controlled then what is probability that the accident could happen again given that
 - ❑ Large numbers of people / few if any are exposed to the hazard
 - ❑ A few people are exposed to the hazard on a regular basis
 - ❑ One person is exposed to the hazard on a continual / rare basis
 - ❑ That probability is not strictly a function of time but in simple terms an estimation of re-occurrence given the above degrees of exposure

Assessment tool

Hazard and risk assessment models are used in industry to aid in the assessment, prioritization and subsequent control of risks. One of the simplest models available is the Hazpak matrix. This assessment tool should be used as part of the accident investigation.

1. How severely could it hurt someone? Or 2. How ill could it make someone?	2. How likely is it to be that bad?			
	Very likely Could happen at any time	Likely Could happen some time	Unlikely Could happen but very rarely	Very unlikely Could happen but probably never will
Kill or cause permanent disability or ill health	1	1	2	3
Long term illness or serious injury	1	2	3	4
Medical attention and several days off work	2	3	4	5
First aid needed	3	4	5	6
The number show you how important it is to do something: 1 top priority: to do something immediately 6 low priority: do something when possible				

The Hazpak assessment model is designed to aid in the prioritization for the control of hazards and risks.

Corrective Action / Hazard Control

When making recommendations as a result of an accident investigation it is important to pick a method of control that is the best in terms of control of the hazard or risk and at the same time appropriate in terms of feasibility. To do this we can use a hierarchy of controls one or more of which could be applied to the circumstances involved in the accident.

- ✓ **Design out the hazard** – if hazards are known prior to the opening of a new department or implementation of a new process they should and can be eliminated prior to commissioning of the department or process
- ✓ **Eliminate the hazard** – where a hazard or risk is identified in an existing work process where possible it should be eliminated from that process e.g. double handling of materials or goods
- ✓ **Substitute the hazard** – this method of hazard control is usually used in when controlling hazardous substances where a toxic substance is substituted with a less or non toxic alternative
- ✓ **Isolate the hazard** – this is a relatively straightforward method of hazard control where the employee or hazard is isolated through the use of fencing or machine guarding etc.
- ✓ **Administrative procedures** – are generally used when there is a significant hazard involved and detailed work instruction procedures are required e.g. confined space entry procedures or where a specific activity is hazardous in nature such as manual handling. Other methods of the use of administrative controls are training and education, task analysis and task procedures, rest breaks and pause gymnastics.
- ✓ **Personal Protective Equipment** – while this method of control should be the last option considered because its use does not diminish the damaging energy and relies on the employee to correctly use the equipment. It may be the only viable method of control with hazards such a noise or dusts generated by hand held power tools etc.