GUIDE TO CONDUCTING A SAFETY INVESTIGATION

The following is a guide to assist the HSW Community of Practice when they undertake an investigation into a safety related incident.

First thing, check the emergency response (don't assume):

- Have all appropriate emergency actions been taken?
  (e.g. first aid, contingency plans enacted);
- Has the area been made safe?
  (noting this may be by restricting access or neutralising potential hazards);
- Have wellbeing checks been undertaken for staff and students who might be affected?
- Is it notifiable to SafeWork SA? (If in doubt call your HSW Senior Advisor)

The Initial tasks*:*

- Preserve the scene – try to stop people from cleaning up until you have all the details recorded;
- Take photos as soon as possible;
- Note the names of the people involved, equipment involved and the names of any witnesses.

The following four steps of an investigation include a series of questions.
It is only through questioning that you will find the information to enable you to:

1. Establish the facts/truth of what happened
2. Analyse and determine the factors and causes that led to the incident
3. Identify suitable corrective actions that should address the factors and causes
4. Recommend corrective actions to the Executive Dean/Head of Division

The aim of the guide is to help ***develop the questioning mind -*** that all investigators need to perform their roles.

The questions that follow are common to nearly all investigations.

Step 1: Establish the facts/truth of what happened

Find out what happened and what conditions and actions influenced the incident.

Begin straight away, or as soon as practicable. It is important to capture information as soon as possible. This stops it being corrupted e.g. items moved, guards replaced etc. If necessary, work must stop and the area secured to prevent unauthorised access.

Talk to everyone who was close by when the incident happened, especially those who saw what happened or know anything about the conditions that led to the incident. The amount of time and effort spent on information gathering should be proportionate to the level of investigation e.g. review of controls, significant incident or notifiable. The better you get at this first line of questioning, the easier your investigations will become.

Discovering what happened can involve quite a bit of detective work. Note that facts may conflict. This is normal as people will have different perceptions or views of what occurred. Avoid discounting any view or attempting to normalise the facts in any way. Simply record all of the information including any views that conflict with the general consensus. Often it is better to talk one on one with those involved to avoid recording a normalised group response.

Step 1: Establish the facts/truth of what happened (continued)

Note that it is not unusual for someone who has made a mistake to be nervous about disclosing information and it is possible that they may choose to omit facts or to present facts that support a specific outcome. Keep an open mind.

Collect all available and relevant information. There may be a lack of information and many uncertainties, but you must keep an open mind and consider everything that might have contributed to the incident. You may need to gather up observations, sketches, measurements, photographs, permits-to-work and details of the environmental conditions at the time etc. This information can be recorded initially in note form. These notes should be kept at least until the investigation is complete.

The Facts

1. Where and when did the incident happen?

A timeline can be helpful in cases where there was a chain of events. Where information conflicts record all of the time points and/or locations.

2. Who was injured/suffered ill health or was otherwise involved with the incident?

It is important to capture as accurately as possible all of those present when the event occurred and anyone whom may have been involved in any actions that led up to the event.

3. How did the incident happen? (Noting any equipment involved)

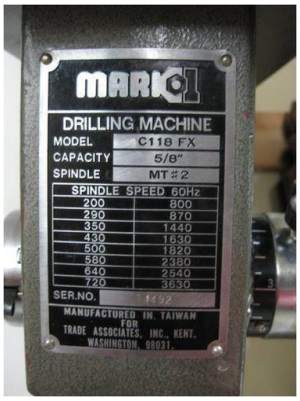
Get those involved to describe what happened.

You will need to understand the chain of events leading up to, and immediately after, the adverse event. Very often, a number of chance occurrences and coincidences combine to create the circumstances in which an incident can happen. The facts (even where some may conflict) should be recorded in chronological order. Work out the chain of events by talking to the injured people, eye witnesses, line managers, health and safety representatives (if the area has one) and fellow workers to find out what happened and who did what.

Be objective – remember that often an incident is made possible not only by the actions of one person but by the actions or inactions of a number of people leading up to the actual incident. For this reason it is wise to avoid apportioning blame or making snap judgements.

4. What activities were being carried out at the time?

The actual work that was being done just before the incident occurred can often cast light on the conditions and circumstances that presented the final trigger for something to go wrong. Ensure you gather through your investigation a good description of the activity being undertaken at the time. Try to gain an understanding of how the work is normally done; what is involved and why.



Consider items such as plant/equipment, chemicals etc, that had a direct bearing on the incident, that must be identified clearly. You should capture information related to the item from labels or nameplates. Note the key details which might include; manufacturer, model details, any unique item number, date/year of manufacture, and any modifications that may have been made to equipment. For plant/equipment consider noting the position of the machinery controls or settings immediately after the incident. Note if the plant/equipment has any tags, maintenance indicators or signage that helps you identify the operational status of the equipment.

Consider the surroundings and the other activities going on in the area at the time.
Consider whether there were any behaviours occurring that were out of the normal or inconsistent with normal practice.

Step 1: Establish the facts/truth of what happened (continued)

5. Was there anything unusual or different about the working conditions?

Incidents often happen when something is different. When faced with a new situation, workers may find it difficult to adapt, particularly if the sources of danger are unknown to them, or if they have not been adequately prepared to deal with the new situation.

If working conditions or processes were significantly different to normal, why was this?

In your attempt to understand questions will lead to more questions:
- Were the changed conditions reasonably foreseeable?
- Was the way that the changed circumstances, temporary or otherwise, were introduced a factor?
- Were workers and supervisors sufficiently trained/experienced to recognise and adapt to changing circumstances?

6. Were there adequate safe working procedures and were they followed?

Incidents often happen when there are no safe working procedures or where procedures are inadequate or are not followed.

Comments such as
- "we've been doing it that way for years and nothing has ever gone wrong before" or
- "she has been working on that machine before and knows what to do"

often lead to the injured person getting the blame, irrespective of what part procedures, training and supervision – or the lack of them – played in the incident.

We need to ask:
- what about 'normal practice' proved inadequate in these circumstances?
- Was a safe working method in place and being followed? If not, why not?
- Were workers and supervisors sufficiently trained/experienced?
- Was there adequate supervision and were the supervisors themselves sufficiently trained and experienced?

7. What injuries or ill health effects, if any, were caused?

It is important to note which parts of the body have been injured and the nature of the injury - ie bruising, crushing, a burn, a cut, a broken bone etc. Be as precise as you are able.

You should ask yourself whether the injuries are consistent with the facts that you have been provided with during your investigation. If not you should ask more questions to clarify what appears to be inconsistent.

Facts such as whether the injured person was given first aid (and by whom) or taken to hospital (by ambulance, a colleague etc.) should also be recorded.

8. If there was an injury, how did it occur and what caused it?

Where an accident is relatively straightforward, it may seem artificial to differentiate between the accident itself (question 3) and the mode of injury, but when the accident is more complicated the differences between the two aspects become clearer and therefore precise descriptions are vital.

The mode of injury concerns two different aspects:
- The harmful object (known as the 'agent') that inflicted the injury; and
- The way in which the injury was sustained.

The object that inflicted the injury may be a hand-held tool like a knife, or a chemical, a machine, or a vehicle etc. The way in which it happened might e.g. be that the employee cut themselves or spilt chemicals on their skin.

Step 1: Establish the facts/truth of what happened (continued)

9. Was the risk foreseeable? Was it documented? Was it controlled?

You need to find out whether the source of the danger and its potential consequences were known, whether controls were considered, and whether this information was communicated to those who needed to know.

The existence of a written risk assessment and/or other associated documentation for the process or task that led to the adverse event can help you understand the thinking that had occurred regarding the associated hazards and risks prior to the event.

You can ask yourself:

- whether the risk assessment was 'suitable and sufficient'', as required by law?
- was the hazard or risk that caused the adverse event considered prior to the event?
- if the hazard was not considered was the hazard obvious or should have been known given the body of knowledge (SDS, Codes of Practice, Google search, etc.)?
- if the hazard or risk was considered were the identified risk control measures reasonable?
- if the identified risk control measures appear to be reasonable, were they actually put in place?

If it is your view that the risk assessment was lacking then it is important that you talk to whomever wrote the risk assessment, if that was a student then discuss the risk assessment with the staff member who authorised it. You need to unpack why it was lacking. Was it a lack of due care? Was it a lack of understanding?

If the implementation of controls was lacking then it is important that you talk to the supervisor and the workers to determine why the controls were not implemented. Was it a failure to provide appropriate information, instruction or training? Was it a lack of understanding? Is there a known behavioural issue (laziness, recalcitrance) and if so how is supervision used to address this?

You should note what is said and who said it, so that potential gaps in the communication flow may be identified and remedied. The aim is to find out why the sources of danger may have been ignored, not fully appreciated or not understood. Remember you are investigating the processes and systems, not the person.

This part of the process is critical and it is vital that you keep an open mind and make copious notes. It is possible that the information you are given will be a version of the facts – you need to question the facts you are given to help you determine the factors that lead to the event – remembering that our job is to determine how to prevent a reoccurrence. That can only happen if we continue questioning until we are certain that we have clarity regarding the facts.

10. Were the people involved competent and suitably skilled?

Information, instruction and training should provide workers with the necessary knowledge, skills and hands-on work experience to carry out their work efficiently and safely. The fact that someone may have an academic qualification does not necessarily mean that they have the necessary skills or experience to do a particular task, related to their academic qualification, safely. This is particularly the case when tasks or activities are not planned or the normal routine is changed. There is no substitute for adequate information, instruction and training. When investigating an incident you should ask yourself:

- Is there a good understanding of the risks involved and the potential consequences?
- Has adequate information, instruction and training been provided such that it would be reasonable to expect that hazards are understood and managed, and tasks are done properly?
- If there is a system to provide adequate information, instruction and training - Was it effective? Was it understood? Was it ignored?
- Was there something about the task or activity that was mismatched with the worker? i.e. Was the worker unlikely to have been able to undertake the task safety despite the provision of information, instruction and training? If so consider why this mismatch occurred and how it could have been prevented.

Step 1: Establish the facts/truth of what happened (continued)

11. Is the activity organised, supervised and managed appropriately?

The University has a relatively unique organisational structure for work especially when it comes to areas where academic freedom applies; such as in research activity. The experts in the activity are individual academics/researchers and they often design the systems of work within their laboratories. Freedom to determine what research or teaching activity is to be undertaken comes with responsibilities. A critical responsibility is the supervision of students who may be undertaking research or teaching activities.

In investigating an incident you should consider:

- Was the supervision and on-site monitoring of work practices adequate?
- Is work organised in such a way that there is pressure to save time by cutting corners?
- Do others working in the area know enough about the activity to intervene if needed?
- Is the local safety culture helping or hindering?

12. Was maintenance, housekeeping and cleaning sufficient? If not, why?

Lack of maintenance and poor housekeeping are common causes of incidents. Was the state of repair and condition of the workplace, plant/equipment such that they may have contributed to or caused the incident?

You should observe the location of the incident as soon as possible and judge whether the general condition or state of repair of the premises, plant/equipment was adequate. Those working in the area, together with witnesses, and any injured parties, should also be asked for their opinion. Working in the area, they will have a good idea of what is acceptable and whether conditions had deteriorated over time.

Consider whether it is possible that the occurrence or severity of the incident may have been affected by:

- Poorly maintained plant/equipment or tools?
- Poorly maintained infrastructure? Lighting? Ventilation?
- Poorly organised or stored plant/equipment/materials around the work area? Clutter?
- Cleanliness of the work area?
- Faded, worn or damaged safety signage?

Plant/equipment being operated in disrepair or with components removed by the workers?

13. Was the workplace layout appropriate?

The physical layout and surroundings of the workplace can affect health and safety. The physical layout including access and egress can contribute to a workplace incident. Are paths and corridors clearly defined? Are they clear of furniture or other obstructions? Is there access to remove injured workers? Are extinguishers readily accessible? Is appropriate storage lacking?

Step 1: Establish the facts/truth of what happened (continued)

14. Did the nature or volume of any materials influence the incident?

Consider whether the materials used pose a hazard; not just from any intrinsic safety issues but also from how they are packaged, transported or stored. Even non-hazardous chemicals can cause injuries when they are purchased in bulk amounts introducing hazardous manual handling issues. Is the quality of materials used such that they do not need refining (distilling, filtering, etc) which can introduce further hazards? Saving money by buying cheaper hazardous chemicals and then redistilling them on site can be a false economy; the risks need to be factored into considering whether this is a viable option.

15. Did difficulties using the plant/equipment influence the incident?

Plant/equipment includes all the machinery, plant and tools used to organise and carry out the work. All of these items should be designed to suit the people using them. This is referred to as ergonomic design, where the focus is on the individual as well as the work task the item is specifically designed to carry out.

A classic example are tools designed to be used by right handed people that may introduce a risk when used by left handed people. Consider if the design of the plant/equipment contributed to the incident?

16. Was the safety equipment used sufficient, appropriate and effective?

Consider all of the control mechanisms that involve guards, PPE and other physical controls.

Ask yourself

- Were they in good working order?
- Are lab coats cleaned and safe to use?
- Are respirators the correct type and how often are cartridges changed?
- Were the controls being used at the time or are they often forgotten or worked around?
- Are their circumstances where the controls cannot be used?
- Test and check all of the controls – Do any stops or cut outs work?
- Do ventilation systems work?
- Is equipment that needs regular servicing or testing in date for its service or test?

Make a note of whether the safety equipment was used, whether it was used correctly, whether or not it was in good condition and was working properly, etc.

17. Did other conditions influence the incident?

Consider anything not already captured above. For example:

- Disagreements or misunderstandings between workers and/or contractors
- The weather – extreme or unanticipated hot, cold or wet conditions.
- Unauthorised interference in a process or job task
- Defective supplies or equipment
- Deliberate acts, such as trespass or malicious damage

Step 2: Analyse and determine the factors and causes that led to the incident

Once the facts are gathered the information should be analysed. The analysis involves examining all the facts; ultimately to determine why an incident/near miss occurred. We want you to be able to find, through your investigation, which of the following factors applied in the case of the incident/near miss that you are investigating:

Failure of process to provide information, instruction and training	The University has not met its obligation to inform, provide instruction or ensure the worker is sufficiently qualified to carry out the work they are asked to do safely.
Inappropriate conduct or behaviour	The individuals actions (contraventions of information, instruction and training) has created the circumstances which caused the injury to themselves or others
Failure to appropriately supervise	The competency of the individual, performing the tasks or working in the environment, was not sufficient in order to protect their safety from known and unknown occurrences
Failure to appropriately manage/control contractors	Contractors were managed in such a way that they were exposed to hazards in the workplace or introduced hazards to the workplace.
Failure to effectively control a hazard	The University has knowledge of a hazard but has chosen controls that were not sufficient in preventing an injury or near miss.
Poor Housekeeping	The work environment was in a state that created the risk of injury
Failure to follow safe work procedures	Individuals have carried out a task in a way that is different from the pre-agreed procedures
Failure to report incidents	Individuals/units or areas have known of hazards, incidents or injuries and have failed to report as required by University procedures
Plant/Equipment/Materials not fit for purpose	Individuals or areas have attempted to use plant/equipment for tasks they are not designed to perform or have used materials that are not suited for the plant/equipment used.
Failure to appropriately maintain plant/equipment	Plant/equipment is not maintained in accordance with the manufacturers instructions
Infrastructure/facilities not fit for the activity being undertaken	The building structure, its fabric and utilities provided, does not match the requirements for the tasks or activities being undertaken
Failure to identify hazard	A hazard has not been identified, that should have readily been known, given the knowledge and experience of industry or the individuals involved.
Failure to appropriately assess a hazard (conduct an effective risk assessment)	The attempt to determine the inherent risk and the residual risk once controls are applied was such that errors were made.
Failure to have a system for scheduled inspection of plant/equipment	The area has not identified that this item of plant/equipment requires a maintenance/inspection check at defined intervals and does not have a schedule or system to ensure it occurs.

It is important that system failures are clearly documented – noting that this is not about blaming individuals but determining if part of the system failed. If it did then this needs to be clearly called out.

You need to be thorough and free from bias, the analysis needs to be carried out in a systematic way, so all the possible causes and consequences of the adverse event are fully considered. A number of formal methods have been developed to aid this approach.

All the detailed information gathered should be assembled and examined to identify what information is relevant and what information is missing. The information gathering and analysis are actually carried out side by side. As the analysis progresses, further lines of enquiry requiring additional information will develop. We often call this 'following the bouncing ball', where a fact leads to another logical question that leads to other facts, etc. You should always ask yourself whether the facts or answers you are given beg further questions, and follow all the balls until you are satisfied you understand where they lead.

Step 2: Analyse and determine the factors and causes that led to the incident (Continued)

Five Whys

A simple approach that can be used in straight forward cases is the 5 Why's.

It is important to understand that the why questions are not independent but each question must apply to the last answer and in the context of the actions taken or omitted rather than any physical or chemical properties. For example see the short 5 Why table completed for a small explosion in a Lab.

5 WHY's	
What happened?	*A small explosion occurred in the laboratory.– THE PROBLEM*
1. **Why?**	*Incompatible chemicals were mixed together in the reaction vessel*
2. **Why?**	*The post-grad student was unaware that the chemicals were incompatible.*
3. **Why?**	*The SDS had not been consulted.*
4. **Why?**	*The post-grad student was unaware of Chemwatch and how to access it.*
5. **Why? i.e. root cause/s**	*Lack of appropriate information, instruction and training.*

The 5 Whys done well can provide a quick and simple approach to determining the root causes or key factors involved in an incident/near miss.

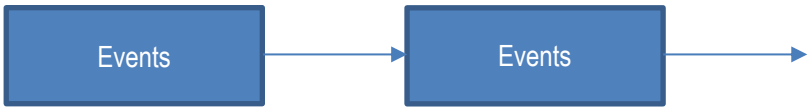
Step 2: Analyse and determine the factors and causes that led to the incident

Events and Causal Factor Analysis

Another useful method for organising your information, identifying gaps and analysis of an incident is Events and Causal Factor Analysis (EECFA),

Where events are enclosed in rectangles and conditions in ovals

Events should be connected with solid arrows

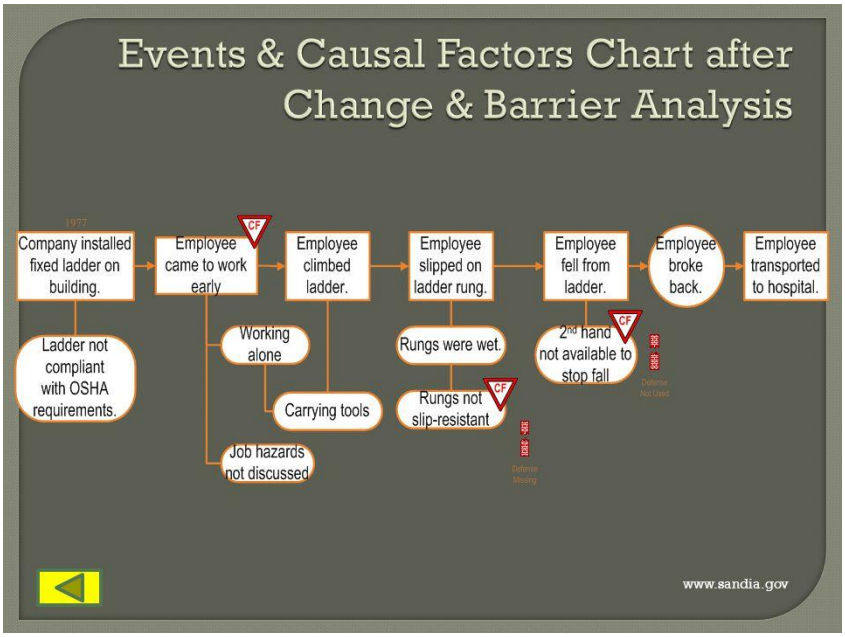


Conditions should be connected with each other and events with a dashed arrow

If there is any event or condition that is not backed by evidence/fact, but is assumed, the rectangle or oval should be a dashed line.

The primary sequence of events should be depicted in a straight horizontal line with events joined by bold printed connecting arrows. Secondary event sequences, contributing factors, and systemic factors should be depicted on horizontal lines at different levels above or below the primary sequence

Step 2: Analyse and determine the factors and causes that led to the incident (Continued)



The analysis should be conducted with key stakeholders and subject matter experts that the investigator deems appropriate. The investigator does not need to possess all the knowledge required to analyse the findings. This team approach can often be highly productive in enabling all the relevant causal factors to emerge.

Human failings (errors and violations)·

What if an act or omission by a person is identified as a contributory factor?

It is common for the root-cause to be from a human act or omission, this might be a wilful act, an act of ignorance or it may arise from a misunderstanding. Your investigation should disclose if a contributing factor was behavioural and ideally try to determine why – e.g. if the person didn't know what the controls were then why didn't they know? Did they not understand? Were they not provided with the information? Were they too busy to pay attention to it? It is in unpicking the human failings that we often gain the best insight into the true cause of an incident.

If your investigation concludes that an act or omission contributed to the incident, consider carefully how to handle this information. Our aim in an investigation is not to belittle or humiliate a worker – it is simply to document facts and arrive at how we might effectively prevent reoccurrence. It will often be difficult to achieve this unless the workers trust you enough to co-operate with you, however you should not gain trust by hiding the facts.

Not addressing the 'human' factors greatly reduces the value of the investigation and is likely to undermine any attempts to prevent future incidents.

Occasionally a root-cause may be inappropriate behaviour – intentionally ignoring or subverting safety processes – if this is suspected you should always interview the individual to understand why the behaviour occurred. Invite them to explain why they did what they did. This will help you better understand the underlying causes. The individual's supervisor should be consulted if you believe they have behaved inappropriately and where appropriate there may be a corrective action that involves the supervisor holding the individual accountable and addressing the behaviour.

Step 2: Analyse and determine the factors and causes that led to the incident (Continued)

Human failings can be divided into three broad types and the action needed to prevent further failings will depend on which type of human failing is involved.

- ***Skill-based errors:*** a slip or lapse of memory: a lack of knowledge/skill, a lapse of memory, or a misstep in the process. There are two types to consider here – it is usually easy to tell the difference between them:
    - A lack of knowledge/or skill is when a person genuinely has no idea that they did, or are doing something wrong. This should lead you to question the process to provide information, instruction and training.
    - Lapses happen when an action is performed out of sequence or a step in a sequence is missed. Lapses may also happen if rushed or distracted. Missteps happen when a person is carrying out familiar tasks automatically, without thinking, and that person's action is not as planned, e.g. operating the wrong switch on a control panel.

- **Judgement-based errors:** A judgement based act or omission arises from making a wrong choice or decision.
    - Rule-based mistakes happen when a person has a set of rules about what to do in certain situations and applies the wrong rule.
    - Knowledge-based mistakes happen when a person is faced with an unfamiliar situation for which he or she has no rules, uses his or her knowledge and works from first principles, but comes to a wrong conclusion.

    Often a judgement based act or omission means some consideration needs to be given to whether the rules or the information, instruction and training are clear. In these cases it is often either a revision of safe working procedures or the information and instruction provided that can prevent future incidents.

- **Violation (rule breaking)**
    Where a person knows what they ought to have done but deliberately breaks the rules it is often hard to evidence, however at times it may also be self-evident deliberate failure to follow the rules, cutting corners to save time or effort, based on the belief that the rules are too restrictive and are not enforced anyway, e.g. operating a microtone without properly clamping the sample.

    There is often a desire among safety staff to immediately reach for more restrictive rules and more administrative processes rather than actually holding the individual accountable. The former works against a good safety culture where the latter actually helps drive a good safety culture. When faced with this situation you should consider whether the corrective action might be for the line manager to hold the individual accountable. Noting that you must be clear that the failure was intentional and that the individual who is accused of a violation is not simply being used as a scapegoat.

Step 3: Identify suitable corrective actions that should address the factors and causes

A methodical approach adopted in the analysis stage should easily enable identification of the failings and their possible solutions.

If several corrective actions are identified, they should be carefully prioritised as a series of recommended corrective actions, which sets out what needs to be done, when and by whom. Assigning responsibility for the corrective action in the recommendation, to make it clear where you believe the responsibility lies, will help Heads of School/Areas or Executive Deans/Heads of Branch understand how the action will be addressed. It also provides a timetable for implementation which may be crucial to the Heads decision.

What corrective actions are needed/recommended?

Your analysis of the incident will have identified a number of risk control measures that either failed or that could have interrupted the chain of events leading to the incident, if they had been in place. You should use this to draw up a list of all the actions needed to prevent this, or similar, incidents occurring.

Some of these measures will be more difficult to implement than others, but this must not influence their listing as possible corrective actions. The time to consider these limitations is when you are determining your recommendations. Your recommendations will always been owned by you, so this is where you need to provide your advice on choosing and prioritising which measures to implement.

In deciding which corrective actions to recommend and their priority, you should choose measures which eliminate the risk using the hierarchy of controls.

Do similar risks exist elsewhere? If so, what and where?

Having concluded your investigation of the incident, consider the wider implications: could the same thing happen elsewhere in the University, on this site or at another location? You should consider including this information in your investigation report. Consider taking steps to check if similar problems exist elsewhere. Consider whether the actions need to be broader than just in the area where the incident occurred.

Have similar incidents happened before? Give details.

If there have been similar incidents in the past why have they been allowed to happen again?
Were actions ineffective?
Were they not completed?

The University will be particularly open to criticism if, as an organisation, ignores a series of similar accidents. Remember that there is value in investigating near-misses and undesired circumstances: it is often only a matter of luck that such incidents do not result in serious injuries.

Step 4: The Safety Investigation Report

Engaging with those who have leadership roles

Through the course of your investigation, you should have met with workers, supervisors and managers. The draft outcomes of your investigation should be discussed with your line manager to allow them to understand what you are recommending.

It is important that someone with appropriate authority agrees to the recommend actions – this may be a Research Group Leader or a Head of School or someone else with the authority to direct staff to undertake actions or operate in a new way. Not every recommended action will be agreed. There should be some discussion to determine what is appropriate and commensurate with the risk. This is an opportunity for senior staff to provide leadership and consider how they are meeting their responsibilities.

If you feel that the senior person you are discussing controls with is not taking the matter seriously enough you should consult with your supervisor regarding how to proceed. It may be that the matter needs escalating or it may be that your expectations need recalibration. Your supervisor can assist you with determining the best course of action.

Once actions are agreed they can be added into the UniSafe system to allow them to be tracked. Recommended actions that are not taken up can remain in your report and noted in the UniSafe system – these may be useful later to show what was considered or to review if there are repeated incidents.

What should I include in my Investigation Report?

It is important to remember that the senior managers of the University rely on you to investigate each incident in an unbiased way and to clearly and concisely present the relevant facts and your conclusions. Always remember your investigation may also be called up in a SafeWork or Coronial investigation of some future incident – it should not have any obvious omissions.

A Safety Investigation Report does not, and should not, contain every fact, observation or piece of evidence gathered during the investigation. While of all of these things should be retained within UniSafe they do not need repeating in the report. A Safety Investigation Report should summarise key points, state all the factors (causes/root causes) you have found and your recommended actions to address these. Enough information should be conveyed such that the senior manager can understand the level of risk.

Which risk assessments and safe working procedures need to be reviewed and updated?

All relevant risk assessments and safe working procedures should be reviewed after an adverse event. The findings of your investigation should indicate areas of the risk assessments that need improving. It is important that you take a step back and ask what the findings of the investigation tell you about your risk assessments in general. Are they really suitable and sufficient?

QUICK REFERENCE GUIDE FOR SAFETY INVESTIGATIONS

IT IS NOT INTENDED THAT THIS BE USED AS A CHECKLIST TO BE FOLLOWED FOR ALL INVESTIGATIONS. INVESTIGATIONS ARE FLUID, FAST PACED THINGS WHERE IT IS NOT POSSIBLE TO CONTROL THE ORDER IN WHICH INFORMATION IS REVEALED. INSTEAD THIS SHOULD BE USED TO HELP DEVELOP THE INQUIRING MIND THAT SAFETY INVESTIGATORS NEED TO DO THEIR JOB WELL.	
AS YOU GATHER INFORMATION ABOUT THE INCIDENT…..ASK YOURSELF, DO YOU KNOW	***YES/NO OR NOT YET***
WHEN AND WHERE THE INCIDENT HAPPENED?	
WHO WAS INJURED OR WAS OTHERWISE INVOLVED IN THE INCIDENT?	
HOW DID THE INCIDENT HAPPEN?	
IF ANY EQUIPMENT WAS INVOLVED DO YOU KNOW WHICH?	
WHAT ACTIVITY WAS BEING UNDERTAKEN AT THE TIME?	
WAS THERE ANYTHING UNUSUAL OR DIFFERENT ABOUT THE WORKING CONDITIONS?	
WERE THERE ADEQUATE SAFE WORKING PROCEDURES AND WERE THEY FOLLOWED?	
WHAT INJURIES WERE CAUSED?	
HOW THE INJURY WAS CAUSED BY THE INCIDENT?	
WAS THE RISK KNOWN? IF SO, WHY WASN'T IT CONTROLLED? IF NO, WHY NOT?	
DID THE ORGANISATION AND ARRANGEMENTS OF WORK INFLUENCE THE INCIDENT?	
WAS MAINTENANCE AND CLEANING SUFFICIENT? IN NOT, WHY NOT?	
WERE THE PEOPLE INVOLVED COMPETENT AND SUITABLY TRAINED?	
DID THE NATURE OR SHAPE OF THE MATERIALS INFLUENCE THE INCIDENT?	
DID DIFFICULTIES USING THE PLANT/EQUIPMENT INFLUENCE THE INCIDENT?	
WAS THE SAFETY EQUIPMENT SUFFICIENT?	
AS YOU ANALYSE THE INFORMATION YOU ARE GATHERING, ASK YOURSELF IF YOU HAVE	
IDENTIFIED THE IMMEDIATE, UNDERLYING AND ROOT CAUSES?	
IDENTIFIED RISK CONTROL MEASURES THAT ARE NEEDED/RECOMMENDED TO PREVENT FURTHER INCIDENT?	
IDENTIFIED THAT SIMILAR RISKS EXIST ELSEWHERE? IF SO, WHERE?	
IDENTIFIED THAT SIMILAR INCIDENTS HAVE HAPPENED BEFORE?	
IDENTIFIED WHICH RISK ASSESSMENTS AND SAFE WORKING PROCEDURES NEED TO BE REVIEWED?	