



## Defence People Policy, SafetyMan

### Work Health and Safety Risk Management Policy

#### Policy statement

1. Defence incorporates risk management into business activities to proactively manage threats (hazards), risk and opportunities, to improve decision making to support the achievement of objectives and outcomes. This policy establishes the process for the management of work health and safety risks in Defence.

#### Scope

2. This policy applies to all Defence workers including ADF members, APS employees, ADF cadets, contractors and other persons.
3. The application of this policy to contractors and sub-contractors is dependent on the degree of control and influence that Defence has over the undertaking and must be defined within the relevant contractual arrangements.

#### Policy – core elements

4. Defence has a primary duty under the Work Health and Safety Act 2011, Section 19 – Primary duty of care to ensure the health and safety of workers and other persons in the workplace. A duty to ensure health and safety requires Defence to manage risks:
  - 4.1. by eliminating health and safety risks so far as is reasonably practicable; and
  - 4.2. if it is not reasonably practicable to eliminate the risks, by minimising those risks so far as is reasonably practicable.
5. Effective risk management involves:
  - 5.1. commitment to health and safety from Defence Senior Leadership;
  - 5.2. the involvement and cooperation of all Defence workers; and
  - 5.3. the identification of reasonably foreseeable hazards that could give rise to risks to health and safety.

#### Policy implementation

6. Work health and safety risk management is an integral part of the strategic, operational and line management planning processes.
7. Managing work health and safety risks is an ongoing process that is triggered when changes affect Defence's activities and operations such as:
  - 7.1. changes in work practices, procedures or the work environment;
  - 7.2. the introduction of new platforms, plant, equipment, substances or infrastructure;
  - 7.3. planning to implement organisational changes;
  - 7.4. new information about workplace risks becomes available;
  - 7.5. responding to work health and safety events/incidents or trends;
  - 7.6. where the design or operating intent for a major system/capability has changed;
  - 7.7. where the operational context has changed; and



- 7.8. as specified by Work Health and Safety Regulations 2011 (eg noise, hazardous manual tasks, confined spaces, falls, high risk work, electrical safety, diving work, plant, hazardous chemicals, lead, asbestos and major hazardous facilities).

### Roles and responsibilities

8. Group Heads and Service Chiefs (as officers of the Person Conducting a Business or Undertaking) are responsible for:
- 8.1. exercising due diligence to ensure that Defence complies with the *Work Health and Safety Act* 2011 and Work Health and Safety Regulations 2011;
  - 8.2. taking reasonable steps to gain an understanding of the hazards and risks associated with the activities of Defence;
  - 8.3. ensuring that appropriate resources and processes are available to eliminate or minimise risks to health and safety so far as is reasonably practicable; and
  - 8.4. communicating significant work health and safety risks to the Secretary of Defence and the Chief of the Defence Force. Significant work health and safety risks are a subset of enterprise risks being managed in the Defence context as follows:
    - 8.4.1. they are determined by the Group Head/Service Chief to require Defence-wide scrutiny/monitoring; or
    - 8.4.2. have significant Defence-wide or multi Group/Service implications.
9. Managers and supervisors are responsible for:
- 9.1. understanding and complying with work health and safety risk management policy and procedures;
  - 9.2. ensuring, so far as is reasonably practicable, that workers are not put at risk from the work carried out by Defence;
  - 9.3. implementing risk management systems for all functions and activities of Defence;
  - 9.4. consulting with workers in a collaborative way to ensure they are involved in hazard identification and implementation of risk controls;
  - 9.5. ensuring sufficient information is communicated to workers about the hazards, risks and risk controls relevant to the workplace, activity or undertaking; and
  - 9.6. ensuring senior leaders are made aware of issues or concerns on safety, especially where managers/supervisors or their workers identify hazards or flaws in any operational procedures.
10. All workers are responsible for:
- 10.1. complying with work health and safety risk management policy and procedures;
  - 10.2. contributing to the establishment and implementation of risk management systems;
  - 10.3. actively participating in hazard identification in the workplace and controlling risks arising from those hazards by:
    - 10.3.1. informing their chain of command or line management or risk control owners of any actual or potential control failures or improvements;
    - 10.3.2. informing supervisors of any perceived risk that could increase exposure to injury or illness;

10.3.3. taking reasonable care for their own health and safety and their fellow workers, and take action when they observe elevated or uncontrolled risks to themselves or others; and

10.3.4. reporting all work health and safety events.

### References and related documents

11. [Work Health and Safety Act 2011](#)
12. [Work Health and Safety Regulations 2011](#)
13. [Model Code of Practice: How to manage work health and safety risks](#)
14. [SafetyMan – Work Health and Safety Roles, Responsibilities and Accountabilities Policy](#)
15. [SafetyMan – Work Health and Safety Risk Management Procedures](#)
16. [Safe Work Australia Interpretive Guidelines - Model Work Health and Safety Act:](#)
  - 16.1. The meaning of 'person conducting a business or undertaking'
  - 16.2. The health and safety duty of an officer
  - 16.3. Discriminatory, coercive or misleading conduct

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## Defence People Policy, SafetyMan

### Work Health and Safety Risk Management Procedure 01 – Defence Work Health and Safety Risk Management Process

1. This procedure relates to *SafetyMan – Work Health and Safety Risk Management Policy* and provides guidance on the application of the Defence Work Health and Safety Risk Management Process.
2. It is essential that the process for identifying, analysing, evaluating and treating work health and safety risks is rigorous, structured and auditable.

#### Risk management – so far as is reasonably practicable

3. **So far as is reasonably practicable** is a requirement of the work health and safety legislation. It requires each work health and safety risk to be weighed against the resources needed to eliminate or minimise the risk. It does not require every possible measure to be implemented, but places the onus on individuals or the organisation to demonstrate (or be in a position to demonstrate) that the cost of additional measures to control the risk (over and above those controls already in place) would be grossly disproportionate to the benefit of the risk reduction associated with the implementation of the additional risk control.
4. In determining what is reasonably practicable, relevant matters must be considered consistent with *Work Health and Safety Act 2011*, Part 2, Division 1, Subdivision 2 - What is reasonably practicable. In relation to a duty to ensure health and safety, reasonably practicable means that which is, or was at a particular time, reasonably able to be done in relation to ensuring health and safety, taking into account and weighing up all relevant matters including:
  - 4.1. the likelihood of the hazard or the risk concerned occurring;
  - 4.2. the consequence, or degree of harm, that would result if the risk eventuated;
  - 4.3. what was known or ought reasonably to be known (reasonable knowledge), about:
    - 4.3.1. the hazard or the risk; and
    - 4.3.2. any ways to eliminate or minimise the risk;
  - 4.4. the availability and suitability of ways, such as risk treatment(s), control measure(s) to eliminate or minimise the risk including application of the hierarchy of control measures; and
  - 4.5. after assessing the extent of the risk and the available ways of eliminating or minimising the risk, the cost (in terms of time, money, effort, capability, reputation and morale) associated with available ways of eliminating or minimising the risk, including whether the cost is grossly disproportionate to the risk.

#### Defence Work Health and Safety Risk Management Process

5. The Defence Work Health and Safety Risk Management Process (Figure 1) provides a systematic process for establishing the context, risk identification, analysing, evaluating, treating, monitoring and reviewing risk. Through application of the process the so far as is reasonably practicable judgement is also considered and applied.



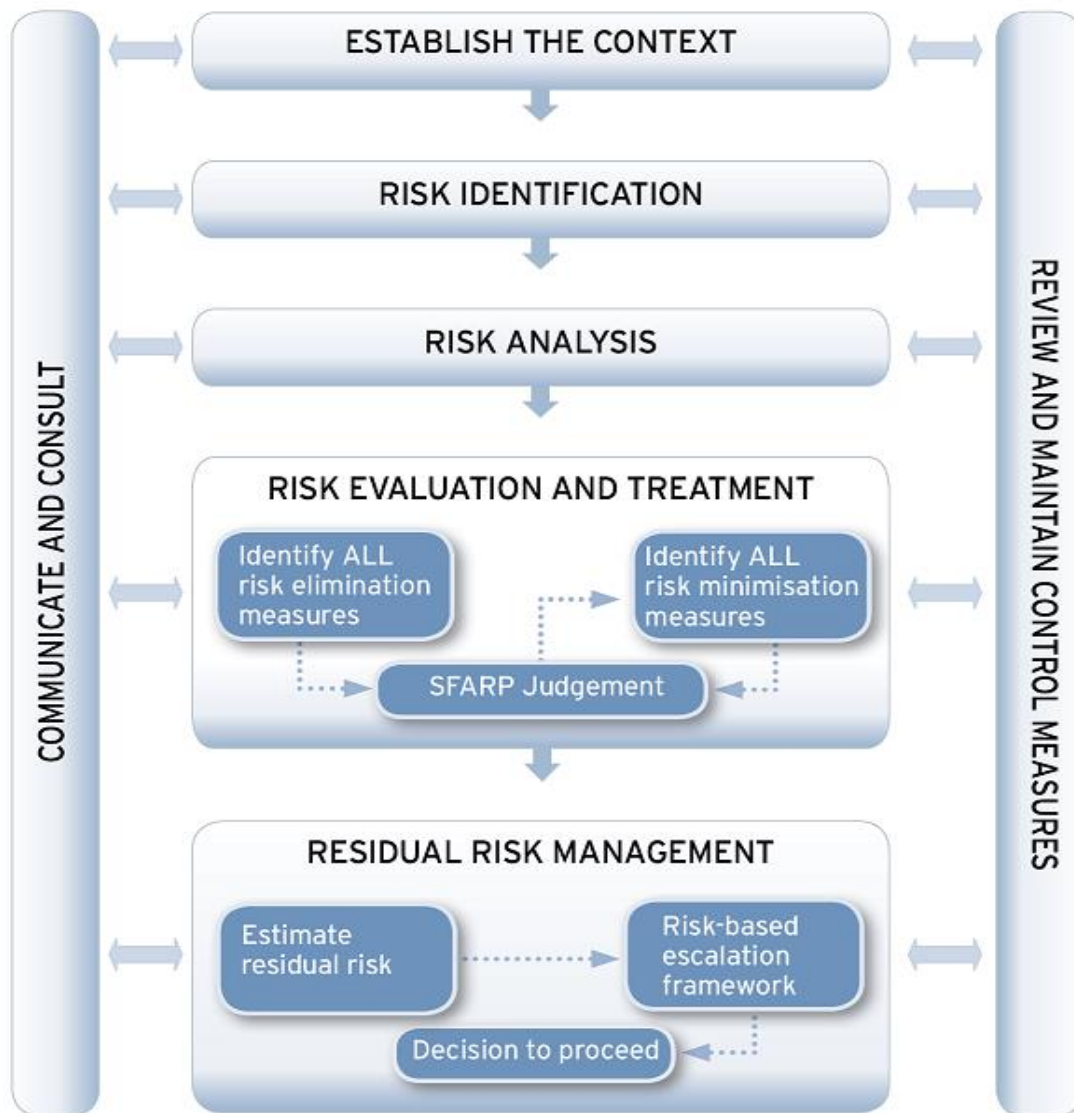


Figure 1: Defence Work Health and Safety Risk Management Process

### Establishing the context

6. The context establishes boundaries and requirements for the work health and safety risk management process to follow and provides the framework for judging whether risks have been eliminated or minimised so far as is reasonably practicable in the circumstance. Circumstances can vary widely in Defence and work health and safety risk related decisions need to be deliberately considered on a case-by case basis.

### Documenting the context

7. The context includes all of the circumstances relevant to the assessment of risk starting with a description of the task/activity being conducted, as well as the objectives and significance. Include the frequency and expected time duration for the activity. Consider and document where applicable:
  - 7.1. people involved and factors that could impact their effectiveness such as physical limitations, health, training, competency, fatigue, stress, team structure and communication challenges;



- 7.2. environmental factors such as physical location (inside/outside), main operating base, forward operating base, geography, expected weather conditions, day/night and any organisational pressures;
  - 7.3. actions to be performed including any sequence of activities and requirements for supervision, inspection and certification; and
  - 7.4. resources necessary to complete the task including orders, instructions, publications, procedures, doctrine, consumables, support equipment and personal protective equipment.
8. The context also includes stakeholders and personnel that the risk needs to be communicated to, inside and potentially outside Defence.
  9. For risk assessments involving major systems, the internal context may also include the applicable phase and organisations involved in the Defence Capability Life Cycle, ie needs, requirements, acquisition, sustainment and disposal.
  10. The internal context may also vary between a Raise, Train, Sustain scenario or force assignment to operations controlled by Chief of Joint Operations as declared in an operation order.
  11. For inherently hazardous activities, Group Heads and Service Chiefs may implement specific safety programs that amplify the overarching intent of the work health and safety legislation, including pro-active hazard identification and safety risk management.

### **Risk identification**

12. This step involves identification of the hazards, things and situations that have potential to cause harm to people. Hazards generally arise from the following aspects of work and their interaction:
  - 12.1. physical work environment;
  - 12.2. equipment, materials and substances used;
  - 12.3. work tasks and how they are performed; and
  - 12.4. work design and management.
13. Some risks may be due to work processes involving hazards, such as mechanical hazards, noise or chemical properties of substances. Other risks result from equipment or machine failures and misuse, chemical spills and structural failures. An item of plant, a structure, a substance or a work process may have many different hazards, each of which need to be identified, eg a maintenance facility may have dangerous moving parts, noise, hazards associated with manual tasks and psychological hazards due to the pace of work. Refer to *SafetyMan – Work Health and Safety Risk Management Procedure 02 – Risk Identification - Hazards Types* for a summary of hazard types and the potential harm to workers that may be found in Defence workplaces.
14. The risk assessment should seek answers to the following questions:
  - 14.1. what are the hazards that arise in the established context?
    - 14.1.1. risks are circumstances that involve hazards and may give rise to accident, injury or illness. The fundamental test for whether something is a hazard is that if it is eliminated there is no risk. For example:
      - 14.1.1.1. if the context is conducting maintenance on the top of a tall structure, one of the identifiable hazards will be gravity; or

- 14.1.1.2. if the context is working around gas turbine engines, the hazards will include noise, temperature (heat) and chemical.
- 14.2. what are the risks to health and safety that those hazards give rise to? For example:
  - 14.2.1. if the hazard is gravity, the risk arising from working at heights may be a worker falling, or tools being dropped; or
  - 14.2.2. if the hazard is chemical, the risk arising from a maintenance activity using hazardous chemicals may be an exposure resulting in acute or chronic injury or illness.
  - 14.2.3. are any of those risks, risks that the *Work Health and Safety Act 2011* or the *Work Health and Safety Regulations 2011* specifically address? If so, identify the relevant parts of the Act and Regulations that will apply to the treatment of the risk.
- 15. There may be benefit in breaking down a complex task/activity systematically into a number of sub-tasks that identify specific hazards and risks using tools such as job safety analysis.
- 16. During acquisition of major systems (eg aircraft, vehicle and ships), the Safety Case Report (or equivalent) should provide evidence that reasonably foreseeable workplace hazards and risks have been identified. The agency responsible for acquisition should also identify any residual work scope and associated funding to undertake verification activities of the effectiveness of controls after the introduction of the major system, eg noise surveys.

### **Risk analysis**

- 17. Analyse the risk(s) by assessing the degree of harm that could arise and estimate the likelihood of the risk eventuating. This may require an assessment of various factors including the integrity of current control measures and the skills and training of personnel involved in the activity giving rise to the risk. The risk assessment should seek answers to the following questions:
  - 17.1. what is the likelihood of the risk eventuating? This will require an assessment of various factors, including:
    - 17.1.1. the integrity of current risk control measures (if any) that have been implemented to control the risk; and
    - 17.1.2. the skills and training of the personnel involved in the activity giving rise to the risks.
  - 17.2. what is the degree of harm that could arise from the risk? This will require an assessment of various factors. For example, including:
    - 17.2.1. if the risk is associated with falls, the harm may include serious injury, or death; or
    - 17.2.2. if the risk is associated with hazardous chemical inhalation, the harm could include acute injury (eg dermatitis or burns), chronic injury (eg damage to respiratory function, cancer or death).
- 18. On the basis of the analysis of the risk (that is the likelihood and the degree of harm), rank the risk by urgency to address the risk. Consider the following factors:
  - 18.1. how imminent is the risk (likelihood);
  - 18.2. how essential is the activity to which the risk attaches; and
  - 18.3. how serious is the risk (degree of harm)?

19. Risks may be prioritised according to how serious they are in terms of degree of harm and likelihood. As subjective estimates of likelihood are prone to errors, more emphasis should be placed on consequence.

### **Risk evaluation and treatment**

20. Identified risks should be evaluated and treated according to the pre-established risk criteria. For risks to health and safety, the risk criterion is that risks are eliminated/minimised so far as is reasonably practicable.
21. During risk evaluation and treatment, the risk assessment should:
  - 21.1. firstly, attempt to identify all risk elimination measures (not just those that are considered practicable). As an alternative to cancelling or suspending a task/activity, the hierarchy of control measures may also be applied, such as substitution or engineering controls may provide effective risk elimination; and
  - 21.2. if it is not reasonably practicable to eliminate the risk, then identify all risk minimisation measures (not just those that are considered practicable).
22. *Work Health and Safety Regulations 2011*, Regulation 36 - Hierarchy of control measures must be applied to all risks, not just the specific risks identified in the *Work Health and Safety Regulations 2011*.

### **Identifying possible risk control measures**

23. The ways of controlling risks are ranked from the highest level of protection and reliability to the lowest as shown in *SafetyMan – Work Health and Safety Risk Management Procedure 03 - Hierarchy of Controls*. The *Work Health and Safety Regulations 2011* require duty holders to work through this hierarchy when managing risk. The risk assessment must minimise risks so far as is reasonably practicable by doing one or more of the following:
  - 23.1. substituting (wholly or partly) the hazard giving rise to the risk with something that gives rise to a lesser risk, like substituting a hazardous chemical containing a toxic ingredient with a less harmful substitute;
  - 23.2. isolating the hazard from any person exposed to it by physically separating the source of harm from people by using distance or barriers; this may include but is not limited to:
    - 23.2.1. installing guard rails around exposed edges and holes in floors;
    - 23.2.2. using remote control systems to operate machinery; and
    - 23.2.3. using remote control cameras for taking imagery of explosive devices under test.
  - 23.3. implementing engineering controls. These are normally physical in nature, including a mechanical device or process. For example:
    - 23.3.1. using mechanical devices such as trolleys or hoists to move heavy loads;
    - 23.3.2. placing guards around moving parts of machinery; and
    - 23.3.3. installing residual current devices (electrical safety switches).
24. If a health and safety risk then remains, administrative controls can then be considered. This could include development of safe work procedures with appropriate notes/cautions/warnings; improvement of existing orders, instructions, procedures, doctrine, signage or training.



25. If a health and safety risk then remains, personal protective equipment can be considered to minimise the residual risk so far as is reasonably practicable in conjunction with the use of higher level controls.

### **Availability and suitability of controls**

26. The so far as is reasonably practicable process requires an assessment of the availability and suitability of control measures, from the most effective to the least effective. A control measure is considered available if it is provided on the open market, or if it is possible to manufacture it.
27. A control measure is considered suitable if it is effective, practical to implement, and does not introduce new and higher risks in the circumstances.
28. Some control measures may lower the likelihood of harm; others may lower the degree of harm (consequence) that may result, and some may lower both. The effectiveness of controls varies significantly according to the sliding scale from elimination (the most effective) to personal protective equipment (the least effective); hence, a combination of control measures should be considered to achieve the best outcome.
29. For higher severity consequences, control solutions should avoid reliance on administrative controls and personal protective equipment. Numerous factors may impact the practicality of implementing possible controls, including:
  - 29.1. workplace/cockpit/cabin layout;
  - 29.2. skills of operators/maintainers; and
  - 29.3. work processes.
30. If a control measure does introduce new risks, then these must be analysed and weighed up against the benefit in terms of risk reduction.

### **Reasonable knowledge**

31. The risk assessment process must gather sufficient knowledge about the hazards, risks and controls to inform the so far as is reasonably practicable judgment and the decision to proceed. When assessing the availability and suitability of controls, knowledge about the hazard and control options can be gained from:
  - 31.1. Regulations and approved Codes of Practice that apply to specific risks such as risks associated with noise, confined spaces, working at height, hazardous chemicals and working at heights (risks associated with falls);
  - 31.2. reputable standards such as Australian Standards, industry standards/publications, airworthiness design standards;
  - 31.3. original equipment manufacturers;
  - 31.4. Safety Case Reports (or equivalent) and approved orders, instructions, publications, procedures and doctrine;
  - 31.5. training and experience with the Defence activity or materiel in question;
  - 31.6. considering controls that other units/operators apply to manage similar hazards and risks;
  - 31.7. analysing previous safety incidents, investigations and their recommendations; and
  - 31.8. consultation with upstream/shared duty-holders including Capability and Sustainment Group, Estate and Infrastructure Group, industry and the affected Groups and Services.

### Cost of risk control measures

32. Importantly, cost is considered last so as not to influence evaluation of all available and suitable risk control measures. Cost will not be the key factor in determining what is reasonable for a duty holder to do unless it can be shown to be grossly disproportionate to the risk. There is a clear presumption in favour of safety over cost.
33. Consultation with other duty-holders may be required to confirm the cost of implementing particular controls. The intent is to apply more effort to fund controls to reduce risks with higher likelihood and higher consequence severity. Cost factors may include the following:
  - 33.1. initial procurement costs, installation, maintenance and operation of the control measure; and
  - 33.2. any impact on productivity/capability as a result of the introduction of the control measure.
34. It is difficult to prescribe an algorithm for determining when the degree of disproportion can be judged as gross; the judgment should be made on a case-by-case basis. In most cases it should be possible to compare outcomes with precedents set by other operators with similar circumstances.
35. Where it is possible, risk should be managed through the application of controls that meet reputable standards. The working assumption is that the appropriate balance between costs and risks was struck when the reputable standard was formally adopted and then kept up to date.
36. Capacity to pay is not relevant. A lack of current funding is not an excuse for avoiding reasonably practicable controls that are suitable and available. A duty-holder cannot expose people to a lower level of protection simply because it is in a lesser financial position than another duty-holder. An example would be where a number of operating units manage the risk of fall during the maintenance of equipment in a facility using work platforms, the same control would be expected to be provided with any similar/same equipment delivered to another unit. An appropriate business case that articulates safety-related risk should support funding requests through the chain of command/management. If it is not possible to implement a control in accordance with a reputable standard, then an organisation may need to consider risk elimination by not conducting the task/activity.
37. For complex and/or costly scenarios, a formal/documented analysis of costs and risk reduction may be required to help judge the benefits of each option and the costs involved. These analyses may be of varying complexity and might include a cost benefit analysis. The cost benefit analysis aims to express all relevant costs and benefits in a common currency, usually money, which becomes challenging when the benefit involves prevention of death, personal injury, pain, grief and suffering.
38. When a control provides the benefit of preventing fatalities, injury or disease, average monetary values for these benefits may be available in cost injury reports such as those produced by Safe Work Australia. It should be noted that these values are very general in nature and may not be the actual value that society, or the courts, might put on the life or injury to a real person or the compensation appropriate to its loss. Nevertheless, such reports form a reasonable baseline from which to analyse control costs versus benefits, provided that appropriate judgment is applied.

### So far as is reasonably practicable argument

39. To determine what is reasonably practicable, the risk assessment should document so far as is reasonably practicable argument that addresses the following relevant matters:
  - 39.1. the likelihood of the risk occurring;

- 39.2. the degree of harm if the risk did occur;
- 39.3. suitability of control measures - to what extent the risk elimination/minimisation measures are suitable;
- 39.4. availability of control measures - to what extent the risk elimination/minimisation measures identified are available;
- 39.5. specific risks - if the risks are specifically addressed in the Work Health and Safety Regulations 2011, then consider matters prescribed in the Regulations;
- 39.6. what is known about the risks;
- 39.7. what is known about the ways of eliminating/minimising the risk;
- 39.8. risk control strategy - what is the strategy for maintenance and review of controls?  
This should include activities that are both:
  - 39.8.1. event-based, such as in response to a local safety incident or a service bulletin from an original equipment manufacturer/other operator; and
  - 39.8.2. time-based, including scheduled reviews of incident report trends, risk registers, work place inspections, maintenance outcomes and audits.
- 39.9. is a risk control plan required to ensure future implementation of control measures; and
- 39.10. only after the above matters have been considered, what is the cost of implementing the available ways of eliminating/minimising the risks, including whether the cost is grossly disproportionate to the risk itself.
40. The relevant matters for documenting a so far as is reasonably practicable argument are summarised in the Figure 2.



**Figure 2: Relevant matters for the SFARP argument and judgment**

- Assess likelihood and degree of harm.
- Identify ALL risk minimisation measures.
- Identify ALL risk elimination measures
- Are control measures suitable and available?
- Focus on the effectiveness of controls applying the hierarchy of control measures.
- Is the cost of implementing control measures (in terms of time, money, effort, capability, reputation and morale) grossly disproportionate to the benefit in terms of risk reduction?

41. Weigh up all relevant matters and make a judgment in response to the question, Are the risk elimination/minimisation measures reasonably practicable to implement? There are three possible outcomes as follows:
  - 41.1. **Yes** - the cost to implement new controls is not grossly disproportionate to the benefit. The control measure is reasonably practicable and should be implemented. Implement, review and maintain the control measure. Proceed to residual risk management, noting that the residual risk level is based on the control measure actually being implemented;
  - 41.2. **No** - the cost to implement new controls is grossly disproportionate to the benefit in the circumstances. Before proceeding further, question whether all available controls have been identified? If yes, proceed to residual risk management. If no, return to the risk treatment step and consult further with stakeholders accordingly; or
  - 41.3. **Unsure** - refer/escalate the so far as is reasonably practicable judgment to a senior officer with the appropriate authority or request assistance from an appropriate headquarters agency.

### Residual risk management

42. Whilst not legislated, estimating the residual risk is necessary for ensuring risk management decisions are made at an appropriate level of authority and for ensuring that Defence efficiently communicates risk up and down the chain of command and across organisational boundaries. This is particularly important for Joint Operations.
43. The risk assessment should estimate the residual risk and then identify an appropriate authority to escalate decisions to. A summary of how the residual risk was determined needs to be documented, including any assumptions regarding the effectiveness of controls. For communication efficiency, the Defence Work Health and Safety Risk Matrix in *SafetyMan - Work Health and Safety Risk Management Procedure 04 – Work Health and Safety Risk Matrix* must be used when estimating the residual risk as a function of consequence and likelihood. This is required to ensure a common language across Defence when communicating safety-related risk where a risk is shared across multiple Groups and Services.
44. Before making an informed decision and providing authority for a task/activity to proceed, the approving authority is responsible for:
  - 44.1. verifying an appropriate level of rigour has been applied to the so far as is reasonably practicable analysis that is commensurate with the complexity and risk associated with the task/activity;
  - 44.2. reviewing the so far as is reasonably practicable argument and the related assumptions;
  - 44.3. approving the risk control strategy (implementation, maintenance and review) and ensuring resources (including funding) are available to enable implementation of those controls before the task/activity is conducted;
  - 44.4. acknowledging the residual risk;
  - 44.5. authorising the task/activity to proceed, or alternatively, cancelling or suspending the activity until more suitable controls can be implemented; and
  - 44.6. ensuring communication of outcomes up, down and across the command chain. If the proposed controls are suitable but not available, then a separate risk control plan may be required so that there is a strategy for future implementation of controls when they become available.

### Implement, review and maintain controls

45. The approved controls must be implemented before conducting the task/activity. The Work Health and Safety Regulations contain specific requirements in relation to review and maintenance of controls for specific risks. This is consistent with the review and maintain control measures step in the risk management process.
46. Verifying the effectiveness of controls may be possible through planned activities such as workplace inspections, behaviour observations, noise surveys (to assess hearing protection and exposure periods/shift times); and occupational hygiene assessment of workplace hazards (such as airborne contaminants from surface finishing processes) and related effectiveness of personal protective equipment.

### Risk control plan

47. If an identified control measure is suitable but not available, a risk control plan may be appropriate, such as an engineering control has been identified but lead time is required for design, test, evaluation, manufacture, approval and implementation/ modification program. In such cases, a strategic plan is required to clarify responsibilities, resources and schedules for implementation of control measures when it becomes available.
48. Where appropriate, the risk control plan should be developed in consultation with other duty-holders (including other Groups and Services, government departments or industry).

### Communication and consultation

49. All stages of the safety risk management process require communication and consultation, with internal and external stakeholders. The *Work Health and Safety Act 2011, Part 5 - Consultation, representation and participation* includes specific requirements for:
  - 49.1. consultation with workers (Sections 47-49); and
  - 49.2. consultation with other duty holders through consultation, co-operation and co-ordination (Section 46).
50. To ensure effective communication of safety-related risk across Defence, Groups and Services should use the Defence Work Health and Safety Risk Matrix descriptors (for safety likelihood and consequence) and safety risk levels, when communicating residual risk. This is particularly important for Joint Operations or where risks are shared across multiple Groups and Services.

### Record keeping

51. Decisions about the use or decision not to implement control measures must be justified and recorded. Record keeping provides traceability and retention of corporate knowledge. A well documented risk assessment provides a useful tool for recording corporate knowledge, which is particularly important in the Defence context where personnel change on a regular basis. The following should be documented:
  - 51.1. all the identified hazards and risks applicable to the particular task/activity;
  - 51.2. the results of the risk analysis process; and
  - 51.3. a so far as is reasonably practicable argument as proposed in paragraph 39 of this procedure.
52. Risk assessment records, including Issue Papers (or equivalent) raised during acquisition of major systems, must include a record of the so far as is reasonably practicable argument.



## References and related documents

53. [Work Health and Safety Act 2011](#)
54. [Work Health and Safety Regulations 2011](#)
55. [Code of Practice: How to manage work health and safety risks](#)
56. [SafetyMan – Work Health and Safety Risk Management:](#)
  - 56.1. [Procedure 02 - Risk Identification – Hazard Types](#)
  - 56.2. [Procedure 03 – Hierarchy of Controls](#)
  - 56.3. [Procedure 04 – Work Health and Safety Risk Matrix](#)
57. [AS/NZS ISO 31000:2018 Risk management - Guidelines](#)

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## Defence People Policy, SafetyMan

### Work Health and Safety Risk Management Procedure 02 - Risk Identification - Hazard Types

1. This procedure relates to SafetyMan – Work Health and Safety Risk Management Policy and provides information on hazard types.
2. To provide a high standard of work health and safety protection for workers, all the things that might go wrong during work activities need to be identified, assessed and where practical, treated. This revolves around identifying hazards in the workplace and as a result of a work activity.
3. The work health and safety hazard types and the potential harm to workers that maybe found in Defence workplaces are listed in Table 1. This list includes hazard sources that are of particular concern to Defence, and reflects the Hazard Source data field which is used in Sentinel, the Work Health and Safety Management Information System.

**Table 1: Hazard types and potential harm**

Hazard Type	Hazard Sources and Potential Harm
Biological	<p>Organic substances that pose a threat to the health of humans and other living organisms. Micro-organisms can cause disease such as hepatitis, legionnaires' disease, Q fever, HIV/AIDS, allergies or other medical conditions. Biological hazards include:</p> <ul style="list-style-type: none"><li>• Animal waste</li><li>• Bacteria and viruses</li><li>• Blood or other body fluids or tissue</li><li>• Bio-active substances</li><li>• Exposure to dust containing airborne allergens</li><li>• Human waste</li><li>• Insect or animal bites</li><li>• Pathogenic micro-organisms</li><li>• Poisonous plants</li><li>• Spores / fungi / mould</li></ul>
Chemical	<p>Chemicals such as acids, hydrocarbons, heavy metals, gases, dusts and fibres (such as asbestos and silica) causing short term (acute) or long term (chronic) injury, illness or death as a result of direct contact with or exposure to the chemical, usually through inhalation, skin contact or ingestion.</p> <p><b>Note:</b> Fuel products (AVTUR, Diesel, and Petrol) are chemicals but identified using the 'Fuel' hazard source for management and reporting purposes in Defence.</p> <p>Chemical hazards include:</p> <ul style="list-style-type: none"><li>• Aerosols</li><li>• Acids</li><li>• Adhesives</li><li>• Gases (pressurized or compressed cylinders)</li></ul>



Hazard Type	Hazard Sources and Potential Harm
	<ul style="list-style-type: none"> <li>Batteries</li> <li>Carcinogenic substances</li> <li>Chemical fire</li> <li>Chemical incompatibility</li> <li>Chemical reactions</li> <li>Chemical storage</li> <li>Combustible substances</li> <li>Corrosive substances</li> <li>Exposure to dust containing airborne chemical contaminants</li> <li>Flammable substances</li> <li>Metals including beryllium, cadmium, lead, lithium, mercury, nickel or zinc chromate</li> <li>Mutagenic substances</li> <li>Oxidising substances</li> <li>Paints</li> <li>Pesticides</li> <li>Pressurised containers</li> <li>Production of chemicals</li> <li>Solvents</li> <li>Teratogenic substances</li> </ul>
Electrical	<p>Direct or indirect contact with electricity causing electric shock, burns, fires or death.</p> <p>Electrical hazards include:</p> <ul style="list-style-type: none"> <li>The design, construction, installation, maintenance and testing of electrical equipment or electrical installations including uninterruptable power supplies</li> <li>Design change or modification</li> <li>Electrical equipment being used in an area in which the atmosphere presents a risk to health and safety from fire and explosion, e.g. confined spaces</li> <li>Exposure to unguarded/unprotected electrical equipment</li> <li>Incorrect wiring</li> <li>Inadequate or inactive electrical protection</li> <li>The type of electrical equipment being used, e.g. mobile electrical equipment is more liable to damage</li> <li>The age of electrical equipment and electrical installations</li> <li>Where and how electrical equipment is used which may result in damage to the equipment or a reduction in its expected life span</li> <li>Work carried out on or near electrical equipment or electrical installations, including electrical overhead lines or underground electrical services</li> </ul>
Ergonomic	<p>Manual tasks involving overexertion or repetitive movement causing muscular strain and other injuries.</p> <p>Ergonomic hazards include:</p> <ul style="list-style-type: none"> <li>Awkward, sustained or repetitive movement or posture</li> <li>Equipment layout and operation</li> <li>Force of movement (pushing, pulling and lifting)</li> <li>Improperly adjusted workstations and chairs</li> <li>Manual handling including cuts</li> <li>Poor lighting conditions</li> <li>Poorly designed tools</li> </ul>

Hazard Type	Hazard Sources and Potential Harm
Explosives	<p>Explosive ordnance manufactured to produce an explosion or pyrotechnic effect. <b>Note</b> - An explosive atmosphere of gas, vapour or dust is not considered to be an explosive - see Chemical.</p> <p>Explosive hazards include:</p> <ul style="list-style-type: none"> <li>Aerospace explosive ordnance</li> <li>Ammunition</li> <li>Anti-tank rounds</li> <li>Detonation cord/fuses</li> <li>Explosive charges</li> <li>Grenades</li> <li>Land explosive ordnance</li> <li>Maritime explosive ordnance</li> <li>Missiles</li> <li>Pyrotechnics</li> </ul>
Fuel	<p>Includes liquid petroleum, lubricants and allied products used in the operation of military equipment and platforms.</p> <p>Fuel hazards include:</p> <ul style="list-style-type: none"> <li>AVTUR</li> <li>Diesel</li> <li>Fuel fires</li> <li>Fuel spills/vapour</li> <li>Oils and lubricants</li> <li>Petrol</li> </ul>
Gravity	<p>Falling objects, falls, slips and trips of people causing fractures, bruises, lacerations, dislocations, concussion, permanent injuries or death.</p> <p>Gravity hazards include:</p> <ul style="list-style-type: none"> <li>Falls from height or at same level</li> <li>Fragile surfaces, eg rusty metal roofs or skylights</li> <li>Hole, shaft or pit into which a worker could fall</li> <li>Objects stored at height</li> <li>Smooth, sloping, slippery or wet surfaces</li> <li>Uneven, irregular or cluttered surfaces</li> <li>Unprotected open edges, eg missing barriers or handgrips on working platforms</li> <li>Unstable surfaces</li> <li>Working at heights</li> </ul>
Land Transport	<p>Includes Defence vehicle classes in accordance with the <a href="#">Defence Road Transport Manual (DRTM)</a> for vehicle classification and civilian vehicle incidents when specifically used in the conduct of a Defence activity.</p> <p>Note - excludes travel to and from work by private vehicle.</p>
Mechanical	<p>Being caught or trapped by moving parts of machinery causing fractures, bruises, lacerations, dislocations, permanent injuries or death. Vibration injuries as a result of operating power tools, equipment or plant causing injury to whole body, hand or arm.</p> <p>Mechanical hazards include:</p> <ul style="list-style-type: none"> <li>Cutting edges</li> <li>In-running nips (such as between pulley and belt)</li> <li>Rotating parts</li> <li>Unguarded machinery, equipment or work areas</li> </ul>

Hazard Type	Hazard Sources and Potential Harm
	<ul style="list-style-type: none"> <li>Punching, shearing and bending actions of machinery</li> <li>Vibration from equipment or power tools</li> </ul>
Motion	<p>Hitting an object or being hit by a moving object causing fractures, bruises, lacerations, dislocations, permanent injuries or death.</p> <p>Motion hazards include:</p> <ul style="list-style-type: none"> <li>Equipment</li> <li>Mobile plant</li> <li>Other people, animals or objects</li> <li>Vehicles</li> </ul>
Noise	<p>Exposure to loud or constant noise causing permanent hearing damage.</p> <p>Noise hazards include:</p> <ul style="list-style-type: none"> <li>Aircraft noise</li> <li>Noise from operating equipment, machinery, plant, tools and vehicles</li> <li>Noise from firing weapons /explosive ordnance</li> <li>Noise onboard ships</li> <li>Noise present in the work environment</li> <li>Noise generated by work tasks / processes</li> </ul>
Pressure	<p>Working above or below atmospheric pressure such as diving (hyperbaric – high pressure) or at altitude such as in aviation (hypobaric – low pressure) and pressure as a result of the release of stored energy (gas, hydraulic and pneumatic systems) causing injection injuries, external/internal injuries, altitude and decompression illness or death.</p> <p>Pressure hazards include:</p> <ul style="list-style-type: none"> <li>Diving – decompression</li> <li>Uncontrolled release of high or low pressure</li> <li>Pressure wave from an explosion</li> <li>High-pressure jetting systems</li> </ul>
Psychosocial	<p>Affects the mental well-being or health of the worker by overwhelming individual coping mechanisms and impacting the worker's ability to work in a safe manner or participate in a work environment.</p> <p>Psychosocial hazards include:</p> <ul style="list-style-type: none"> <li>A traumatic event including an unexpected medical condition</li> <li>Bullying and harassment</li> <li>Constant low noise levels</li> <li>Drugs and alcohol</li> <li>Fatigue</li> <li>Highly stressful tasks</li> <li>Inadequate communication</li> <li>Inadequate interpersonal relationships</li> <li>Remote or isolated work</li> <li>Workplace aggression or violence</li> <li>Work related mental stress</li> <li>Excessive workload</li> </ul>



Hazard Type	Hazard Sources and Potential Harm
Radiation	<p>Radiation sources have the potential to cause immediate physical harm as well as long term health effects to people through a variety of physiological processes. The management of these hazards requires specialist advice, which is available from the <a href="#">Defence Radiation Safety Manual (DRSM)</a>.</p> <p>Radiation hazards consist of the following:</p> <ul style="list-style-type: none"> <li>• Electric and Magnetic Field (EMF) Radiation: ie static and low frequency field sources &lt;3 kHz</li> <li>• Radiofrequency (RF) Radiation: ie communications, radar and micro wave transmitter sources &gt; 3 kHz</li> <li>• Coherent Optical Radiation: ie Laser apparatus sources</li> <li>• Incoherent Optical Radiation: ie Infrared (IR), Visible (VIS) and Ultraviolet (UV) sources including solar (sunlight) and arc welding flash</li> <li>• Ionising Radiation: photon sources (x-ray and gamma ray) and particle sources (alpha and beta particles)</li> </ul>
Small Arms	<p>Includes activities involving the individual or crew served weapons up to maximum 20mm. Does not include other types of explosive ordnance (eg explosive charges, grenades, anti-tank, and pyrotechnics) – see Explosives.</p> <p>Small arms hazards include:</p> <ul style="list-style-type: none"> <li>• Ceremonial and cadet rifles</li> <li>• F88 Steyr variants</li> <li>• F89 Light support weapon</li> <li>• Pistols 9mm variants</li> <li>• MAG 58 General purpose machine gun</li> <li>• Shot guns</li> <li>• Sniper rifle variants</li> <li>• Sub machine guns</li> </ul>
Temperature	<p>Effects of exposure to heat or cold where the body is unable to regulate core body temperature at an optimal level causing illness, injury (eg fatigue, burns, rashes, cramps, heat exhaustion, heat stroke, hypothermia, frost-bite) or death.</p> <p>Temperature hazards include:</p> <ul style="list-style-type: none"> <li>• Temperature of the surroundings including fire (except chemical/electrical fires)</li> <li>• Hot/ cold surfaces</li> <li>• Humidity</li> <li>• Work environment/ weather</li> <li>• Inadequate or excessive level of clothing/personal protective equipment</li> <li>• Personal factors, e.g. health or medications</li> <li>• Physical exertion</li> </ul>

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## Defence People Policy, SafetyMan

### Work Health and Safety Risk Management Procedure 03 - Hierarchy of Controls

1. This procedure relates to *SafetyMan – Work Health and Safety Risk Management Policy* and provides information on the application of the hierarchy of controls (see Figure 1).
2. Risk control is taking action to eliminate work health and safety risks, and if that is not possible, taking action to minimise those risks so far as is reasonably practicable.
3. The hierarchy of control measures are:
  - 3.1. **Eliminate** – the most effective control measure involves elimination of the hazard. Eliminating the hazard will also eliminate any risks associated with the hazard. Eliminating hazards is often more cost effective and practical to achieve at the design or planning stage of a platform, product, process or activity;
  - 3.2. **Substitute** – involves replacing the hazard with a hazard that has a lower level of risk (eg substituting a solvent-based paint with a water-based product, using an Unmanned Aerial Vehicle (UAV) instead of a manned aircraft);
  - 3.3. **Isolate** - involves isolating the hazard by physically separating the source of harm from people by using distance or barriers (eg installing guarding on machinery or barriers to prevent access);
  - 3.4. **Engineering** – are controls that are physical in nature, such as a mechanical device or process (eg mechanical isolation - mechanical lock-outs or tag-outs or software systems that provide redundancies);
  - 3.5. **Administrative** – are work methods or procedures that are designed to minimise exposure to a hazard (eg procedures on how to operate machinery safely, limiting the exposure time to a hazardous task, use of safety signs to warn people of a hazard); and
  - 3.6. **Personal Protective Equipment (PPE)** – personal protective equipment limits the exposure to harmful effects of a hazard (eg gloves, respirators, glasses, coveralls, hearing protection, hard hats).

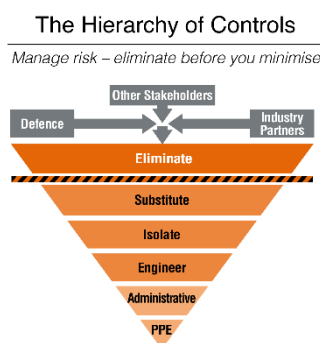


Figure 1 – Hierarchy of Controls



4. Figure 2 depicts the application of the Hierarchy of Controls to achieve a 'so far as is reasonably practicable' assessment of risk.

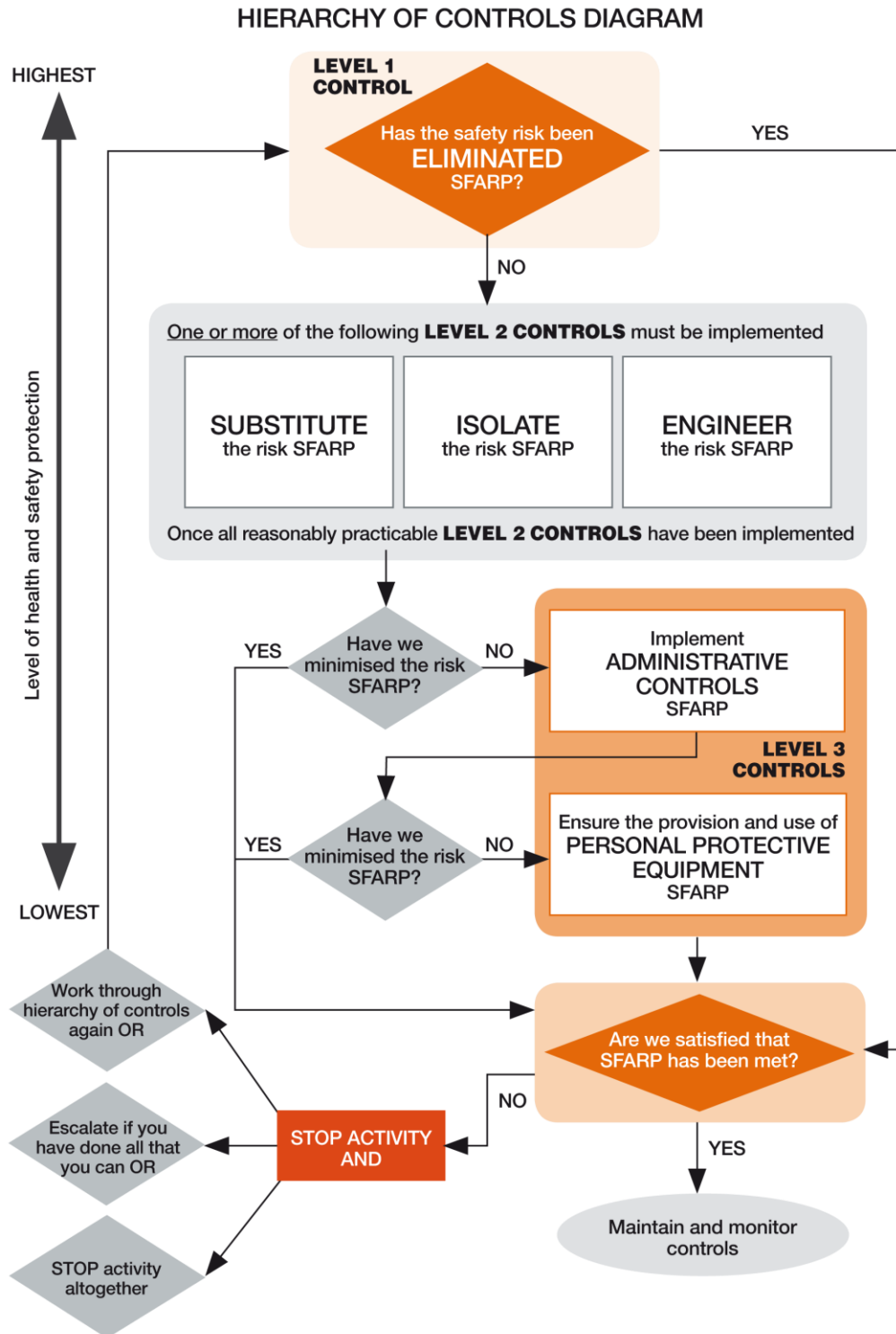


Figure 2: Application of the hierarchy of controls

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## Defence People Policy, SafetyMan

### Work Health and Safety Risk Management Procedure 04 – Work Health and Safety Risk Matrix

1. This procedure relates to SafetyMan – Work Health and Safety Risk Management Policy and provides information on the use of the Defence Work Health and Safety Risk Matrix (see Figure 1).
2. The risk matrix is used during a risk assessment to assess the level of risk by considering the category of likelihood (probability) against the category of consequence (severity).
3. This is a simple tool to communicate risks and assist management decision making.
4. The safety risk levels are provided in a standardised work health and safety risk matrix. An alphanumerical risk ranking can be read from the position in the matrix where the likelihood of harm (probability) and the severity of harm (consequence) ratings intersect.

Figure 1: Defence Work Health and Safety Risk Matrix

Defence Work Health & Safety Risk Matrix						
Consequence descriptors  Likelihood descriptors		Minor (A)	Moderate (B)	Major (C)	Critical (D)	Catastrophic (E)
		Minor injury or illness that is treatable in the workplace (first aid) OR by a registered health practitioner, with no follow up treatment required.	Injury or illness causing no permanent disability, which requires non-emergency medical attention by a registered health practitioner OR 10 or more injuries or illnesses categorised as 'minor'.	Serious injury or illness requiring immediate admission to hospital as an inpatient and/or permanent partial disability OR 10 or more injuries/illnesses categorised as 'moderate'.	Single fatality and / or permanent total disability OR 10 or more injuries or illnesses categorized as 'major'.	Multiple fatalities OR 10 or more injuries / illnesses categorised as 'critical'.
Almost certain (5)	Activity: Expected to occur during the planned activity. Is known to occur frequently in similar activities. System: Expected to occur several times a year or often during the system life-cycle. Is known to occur frequently in similar systems being used in the same role and operating environment.	(A5) LOW	(B5) MEDIUM	(C5) HIGH	(D5) VERY HIGH	(E5) VERY HIGH
Probable (4)	Activity: Expected to occur in most circumstances, but is not certain. Is known to have occurred previously in similar activities. System: Expected to occur one or more times per year or several times in the system life cycle. Is known to occur previously but is not certain to occur.	(A4) LOW	(B4) MEDIUM	(C4) HIGH	(D4) HIGH	(E4) VERY HIGH
Occasional (3)	Activity: Not expected to occur during the planned activity. Sporadic but not uncommon. System: Expected to occur less than once per year or infrequently during system life cycle.	(A3) VERY LOW	(B3) LOW	(C3) MEDIUM	(D3) HIGH	(E3) HIGH
Improbable (2)	Activity: Not expected to occur during the planned activity. Occurrence conceivable but considered uncommon. System: Not expected to occur, but possible to experience one or more events during the system life cycle.	(A2) VERY LOW	(B2) VERY LOW	(C2) LOW	(D2) MEDIUM	(E2) MEDIUM
Rare (1)	Activity: Not expected to occur during the planned activity. Occurrence conceivable but not expected to occur. System: Only expected to occur in rare or exceptional circumstances or no more than once during the system life cycle.	(A1) VERY LOW	(B1) VERY LOW	(C1) VERY LOW	(D1) LOW	(E1) LOW



### Likelihood descriptors

5. Likelihood descriptors are qualitative and are separated into two themes: Activity and System to ensure standardised work health safety risk management throughout Defence. The Activity likelihood descriptors are used for activities or workplace risk assessments. The System likelihood descriptors are used for system safety programs. .
6. In some circumstances, particularly in the design, acquisition and sustainment phases of the Capability Life Cycle, it may be relevant to utilise quantitative ratings in line with the qualitative descriptors. Where quantitative likelihood data exists and providing it is from an authoritative or credible source and considered to apply, the safety risk assessor should consider such data to inform their judgment.

### Consequence descriptors

7. Consequence descriptors consider the extent (or impact) if the risk eventuates. It is not the worst-case scenario, but the worst credible scenario in line with the context of the situation or activity being assessed.

### Alphanumeric Codes

8. When using the matrix to communicate risk levels, the risk assessment code must be included. The risk assessment codes are alphanumeric and are numbered A1 to E5. This is to ensure that the risk profile is better understood, such as a Medium (B5) is not identical to a Medium (E2) since the latter involves a more severe degree of harm (Catastrophic - multiple fatalities), which may influence the allocation of resources to eliminate or minimise risk so far as reasonably practicable (SFARP).

### Use of the matrix

9. When conducting risk assessments, the emphasis must be on the identification and implementation of reasonable and effective risk controls as this may inform decision making in relation to the appropriate allocation and use of resources. It may also inform the assignment of appropriate risk controls that contribute to effective risk management.

<b>Document reference</b>	SafetyMan – Work Health and Safety Risk Management Procedure 04 – Work Health and Safety Risk Matrix		
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