

Guide for major amusement parks: Developing a safety case outline

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Table of acronyms

Abbreviation	Meaning
HAZID	Hazard identification
LOPA	Level of protection analysis
SFARP	So far as reasonably practicable
SMS	Safety management system
WHS	Work health and safety

1. Introduction

1.1 *What is a safety case outline?*

A safety case outline is a plan for the preparation of a safety case for a major amusement park. It is essentially a project plan. A well-developed safety case outline will help the major amusement park operator to plan and produce a safety case that is delivered on time to the Work Health and Safety Regulator (the regulator) and meets the requirements of the Work Health and Safety Regulation 2011 (WHS Regulation).

The safety case outline provides information, including a timetable, to explain how the major amusement park operator will prepare a safety case that meets these requirements. It should provide a clear picture of what the operator will do, how and when.

The safety case outline may also be used by the regulator to plan its interactions (e.g. site visits or requests for further information).

1.2 *How is the outline different from the actual safety case?*

While the safety case outline provides information on how a major amusement park operator intends to prepare their safety case, the actual safety case is a written demonstration that the risks of an amusement device incident occurring are appropriately managed by presenting technical, management and operational information about:

- the hazards and risks that may lead to an amusement device incident at a major amusement park
- how these hazards and risks are controlled
- how the safety case is regularly reviewed and monitored to ensure effectiveness.

The safety case must also contain information about the amusement device emergency plan and a range of other matters for the major amusement park including:

- annual inspections and major inspections
- maintenance, inspection and testing of amusement devices
- instruction and training of amusement device operators and others who maintain, inspect or test amusement devices at the park
- log books
- security of the park
- consultation with workers.

1.3 *Amusement device incidents*

An amusement device incident at a major amusement park is an occurrence that involves an amusement device at the park, and exposes, or potentially exposes, a person to serious risk to health or safety where that risk emanates from an exposure, or potential exposure, to the occurrence.

An 'occurrence' includes:

- a collapse, failure, malfunction, mechanical breakdown or overturning of the amusement device, or plant or structure related to the device; or
- an implosion, explosion or fire that involves an amusement device or any plant or structure related to the device.

In addition to incidents that occur as a result of operating amusement devices, there are also incidents associated with running a major amusement park (e.g. trees and adjacent structures that may fall on the amusement device).

Risks associated with the following activities in a major amusement park do not need to be included in the safety case under the WHS Regulation:

- provision of refreshment, food and beverage services to patrons of the major amusement park in the ordinary course of operating a catering venue
- animal welfare, or risks associated with keeping or exhibiting animals, at a major amusement park
- provision of hotel services at a major amusement park.

Examples of amusement device incidents include failure/s of:

- rider restraint systems (e.g. patrons ejected from a ride)
- control systems for a ride (e.g. gondolas colliding into each other on a ride)
- electrical systems for a ride (e.g. electrical components overheating and catching fire)
- structural ride components (e.g. metal fatigue leading to roller coaster track collapse)
- mechanical ride components (e.g. faulty hydraulic component resulting in uncontrolled seizure of the ride)
- ride emergency response plan (e.g. inability to undertake rescue of patrons from a ride stalled at height due to emergency services' rescue vehicles being of inappropriate reach or manoeuvrability for the situation).

Other amusement device incidents indirectly related to the amusement devices include failure/s of:

- crowd management:
 - patron/s crushed in crowd panic during an amusement device incident or
 - patron/s in crowd stampede unable to escape from fire in an area of the park (e.g. when some park roads are closed around ride construction sites)
- park emergency response plan (e.g. collision between patrons and emergency response vehicles on park's internal walking paths when emergency vehicles are responding to an amusement device incident)
- job safety analysis/safety management system (e.g. cranes being located too close to a ride or dropped items falling onto patrons within the general park areas during ride construction, maintenance or demolition of a ride)
- security measures (e.g. allowing access to sabotage of amusement devices).

In the safety case, the major amusement park operator provides justification for the measures the operator has taken to ensure amusement devices at the park do not expose, or potentially expose, a person to a serious risk to health or safety. By focusing attention on incident prevention, the safety case can improve safety at the major amusement park.

1.4 Life cycle of an amusement device

In considering the safe operation of amusement devices, it is useful to review each stage of the life cycle of the device. The review will help to identify steps that should have been taken to ensure the safety of the device.

Stages of the life cycle of an amusement device should include:

- design (e.g. concept, detailed design, technical standards used)
- design verification for design registration purposes
- contract to purchase (to include detailed technical and safety specifications)
- manufacture
- delivery
- installation
- commissioning
- preparing to operate (e.g. maintenance schedules, operation procedure, operator training, emergency procedure)
- operation (e.g. annual and major inspection by registered professional engineer, alteration to design to improve operation and safety)

- de-commissioning
- demolishing amusement devices.

1.5 Safety case guidance

The safety case forms part of the major amusement park operator's application for a major amusement park licence. Details about the information required in a safety case are provided in the *Guide for major amusement parks: Preparation of a safety case*.

1.6 When are a safety case outline and safety case required?

Table 1 WHS Regulation requirement – Safety case outline (section 608G)

Regulation	Requirement
608G	<p>Safety case outline must be given</p> <p>The operator of a major amusement park must give the regulator a safety case outline, for the park, that complies with section 608H within six months after the relevant day for the park.</p>
608A	<p>Relevant day</p> <ul style="list-style-type: none"> • For a major amusement park that exists on commencement of section 608A – the commencement day. • Otherwise – the day a workplace becomes a major amusement park.

From 1 May 2019, the major amusement park operator of an existing major amusement park will have:

- six months to provide the regulator with a safety case outline; and
- two years to provide the regulator with a safety case and to apply for a major amusement park licence. A park can continue to operate amusement devices during this period.

The new licensing system will also apply to any new major amusement parks developed in Queensland which meet the criteria for a major amusement park.

Relevant definitions are set out in Appendix A.

2. Steps in preparing the safety case outline

2.1 *Preparing a safety case outline*

Preparing a safety case outline will generally require the major amusement park operator to:

- have a good working knowledge of managing risks associated with amusement devices at a major amusement park
- understand the purpose of a safety case
- understand what processes and systems are required by relevant parts of the WHS Regulation, particularly chapter 5 (Plant and structures) and chapter 9A (Major amusement parks)
- identify what information will be required to prepare the safety case
- identify any existing information that might be used to meet these requirements
- carry out a comparison or analysis which evaluates the existing information against the requirements and determine what extra information is needed to prepare the safety case (gap analysis or similar)
- determine how to obtain the extra information
- plan to evaluate how well the major amusement park meets the requirements of the *Work Health and Safety Act 2011* (WHS Act) and WHS Regulation
- establish what actions, systems or processes are required to meet any deficiencies in meeting the requirements of the WHS Regulation
- write the safety case outline.

Figure 1 outlines the steps involved in managing risks associated with amusement devices at a major amusement park.

2.2 *Who prepares the safety case outline?*

The major amusement park operator may decide to engage a suitably qualified and experienced person from outside the major amusement park to assist with the preparation of the safety case outline. However, the regulator expects the operator to have ownership of the safety case outline and the safety case. This means that people who work at the park must be involved in the development of these documents and understand the decisions made and the implications of these decisions (see section 4.5 of this Guide).

The most important outcome from preparing a safety case outline and safety case is not the written documentation itself. It is the learning and understanding that will inevitably develop in the minds of the documentation's authors and contributors. The documentation, like a 'guidebook', becomes a means of embedding the learning and understanding into business systems so that over-reliance on employees for embedded knowledge and corporate history is minimised as far as reasonably practicable.

When external assistance is used to develop the safety case outline and safety case, the operator must ensure its own thorough understanding of the risks and control measures and take responsibility for the safety case, including the responsibility for implementing the controls, and monitoring their effectiveness.

External assistance should normally be limited to assistance with documentation, specialist advice that is used by the operator in making decisions, and provision of modelling or technical data. The major amusement park operator should demonstrate in the safety case outline that there is an appropriate balance between resources and knowledge from the major amusement park and those drawn from people outside the major amusement park.

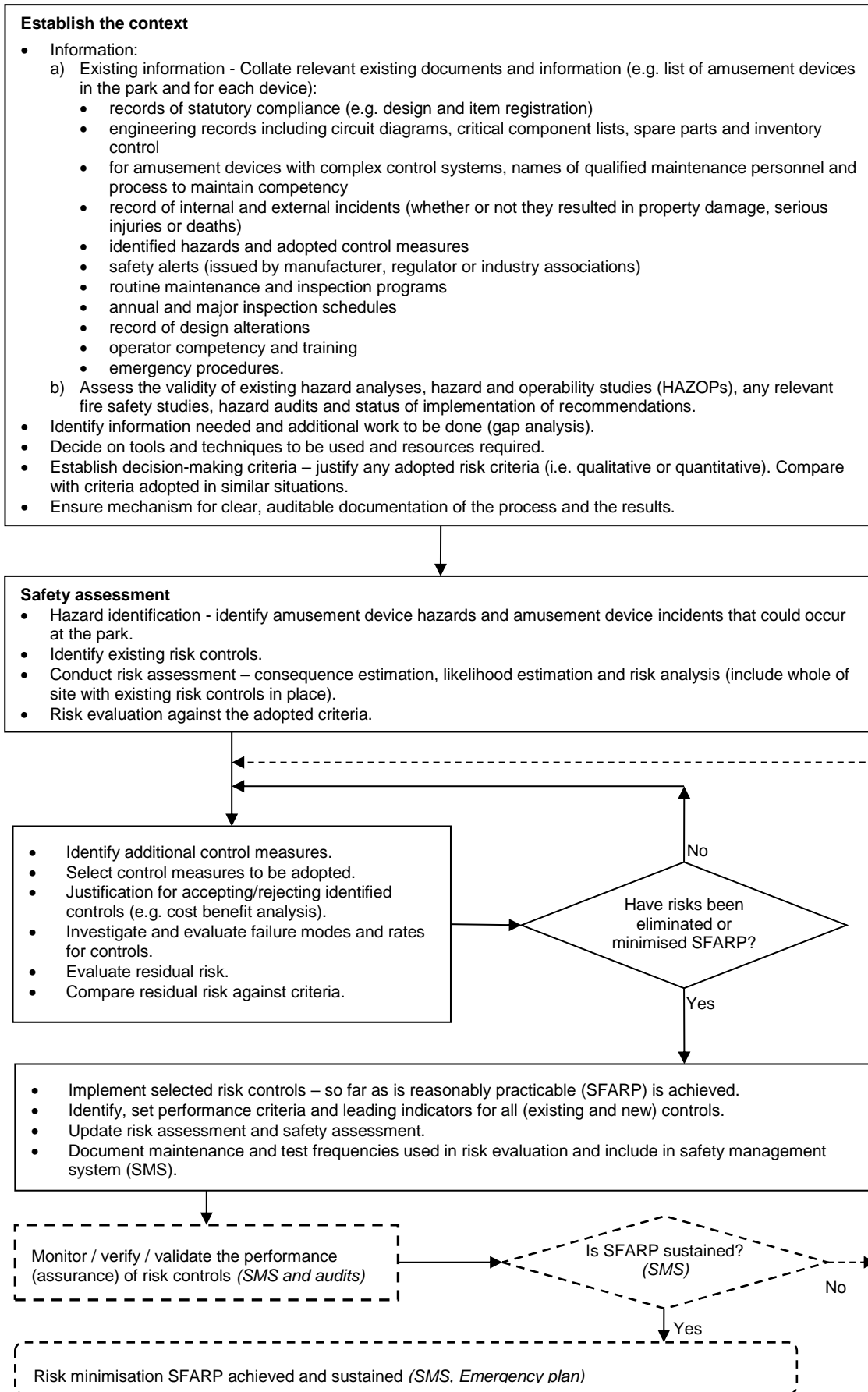


Figure 1: Flowchart for managing risks associated with amusement devices at a major amusement park.

3. Safety case outline format and submission

A separate safety case outline is required for each major amusement park. It should clearly identify the major amusement park to which it applies. The information may be provided in paper or electronic form and sent to the regulator at the addresses given below unless otherwise notified in writing by the regulator.

Table 2 Addresses for submission of safety case outlines

Address for paper submissions	Address for electronic submissions
Engineering Unit Workplace Health and Safety Queensland Office of Industrial Relations PO Box 820 LUTWYCHE QLD 4030	designregistrationapplications@oir.qld.gov.au

To make the safety case outline easy to follow and refer to, it is recommended:

- All information in the safety case outline and any supporting documents should be legible – font sizes should be large enough, and graphics/illustrations, diagrams and plans should be at an appropriate scale and of high enough resolution for details to be readable.
- The safety case outline is set out in a clear and logical manner with headings, section numbers and a table of contents.
- Site-specific or industry-specific terminology and abbreviations are explained, preferably in a separate glossary.
- Each page includes in the header or footer sufficient information to identify the major amusement park to which it applies, preferably the company or other name, the suburb or town, and the park identification number assigned by the regulator (if any).
- Each page includes in the header or footer sufficient information to identify the document of which it forms part, including the date, version number, section number and page number (in the form 'page X of Y').
- The cover page lists the name and address of the major amusement park, the park identification number assigned by the regulator (if any), the name, title and contact details for the person the regulator should contact if details in the safety case outline require clarification, and the date of preparation and version number of the safety case outline.

4. Content of the safety case outline

4.1 General requirements – content and purpose

The minimum contents which must be included in a safety case are prescribed in section 608H of the WHS Regulation. Refer to Table 3.

Table 3 WHS Regulation requirements – Safety case outline contents (section 608H)

Regulation	Requirement
608H	<p>Content</p> <p>A safety case outline provided under section 608G must include the following:</p> <ul style="list-style-type: none"> • a written plan for the preparation of a safety case for the park, including key steps and timelines, with reference to each element of the safety case • a description of the methods to be used in preparing the safety case, including methods for ensuring all information contained in the safety case is accurate and up-to-date when the safety case is given to the regulator • details of the resources that will be applied to the preparation of the safety case, including the number of persons involved, their relevant knowledge and experience and sources of technical information • a description of the consultation with workers that: <ul style="list-style-type: none"> ○ occurred in the preparation of the safety case outline and ○ will occur in the preparation of the safety case • a draft of the amusement device emergency plan prepared or to be prepared by the operator of the park • relevant information about each amusement device at the park including all of the following: <ul style="list-style-type: none"> ○ the name of the amusement device ○ the manufacturer of the amusement device ○ the class of the amusement device under section 2.1 of AS 3533.1 ○ the plant design registration number of the device (if any) issued by the regulator ○ if known, the year the amusement device was manufactured or first commissioned • a summary of details about how the safety case will address the following: <ul style="list-style-type: none"> ○ annual inspections under section 241 of amusement devices at the park ○ major inspections under section 241A of amusement devices at the park ○ maintenance, inspection and testing of amusement devices at the park ○ arrangements for the security of the park ○ how the operator proposes to monitor the effectiveness of the safety case • details about the following: <ul style="list-style-type: none"> ○ the instruction and training given, or to be given, by the operator under section 238 and the way a person is decided to be a competent person to operate the device ○ the instruction and training given, or to be given, by the operator to a person who maintains, inspects or tests an amusement device at the park ○ log books kept for amusement devices at the park under section 242.

The safety case outline must clearly identify the main activities and timetable that the major amusement park operator will follow to prepare a satisfactory safety case by the due date, and the resources that will be used. The safety case outline is in effect a project plan for the preparation of the safety case. The descriptions of the activities as required below should be linked to a timetable and/or Gantt chart.

The safety case outline provides assurance to the major amusement park operator, workers at the major amusement park and the regulator that the operator has adequately scoped and planned for the development of the safety case and will be approaching the development in a structured and systematic manner.

The regulator expects that major amusement park operators will monitor their progress against the timetable and allocate additional resources if required to meet the due date. The regulator may refer to the timeline in planning its interactions with the major amusement park.

The requirements for the safety case outline are set out in the WHS Regulation (part 9A.3, Division 2). The following sections of this guide provide guidance on how to meet these requirements.

4.2 The outline: A written plan for the preparation of the safety case

This section of the safety case outline includes key steps and timelines, with reference being made to each element of the safety case.

The major amusement park operator will need to:

- identify what information is required to prepare the safety case by referring to:
 - WHS Regulation, part 9A.3, Division 2
 - WHS Regulation, schedules 18B Matters to be included in amusement device emergency plan for major amusement park, and 18C Matters to be included in amusement device safety management system of major amusement park
- identify existing information and documents that could be used in the preparation of the safety case. This may include:
 - list of amusement devices in the park and include for each device:
 - records of statutory compliance (e.g. plant design and item registration)
 - specifications for equipment and processes, including:
 - information provided by the designer, manufacturer, supplier and inspecting engineer/s
 - other records including circuit diagrams, critical component lists, spare parts and inventory control
 - identification of critical controls and systems
 - record of design alterations
 - maps, plans and procedural/safety diagrams
 - record of risk assessments on activities that could lead to an amusement device incident
 - identified amusement device hazards and adopted control measures
 - record of amusement device incidents (whether or not they resulted in property damage, serious injuries or deaths) (internal and external)
 - results of inspections, reviews, audits and amusement device incident investigations and the implementation of any safety-related action items resulting from the inspection, review, audit or investigation
 - relevant safety alerts (issued by manufacturer, regulator or industry associations)
 - routine maintenance and inspection programs
 - for amusement devices with complex control systems, names of qualified maintenance personnel and process to maintain competency
 - annual and major inspection schedules and reports

- operator competency and training
- emergency procedures.
- park hazards that are related to operating a major amusement park rather than amusement device hazards including:
 - record of risk assessments on activities that could lead to a major incident
 - maps, plans and procedural/safety diagrams
 - identification of critical controls and systems
 - results of inspections, reviews and audits and the implementation plan for safety-related action items
 - inventory of emergency/rescue equipment, that is nominated in amusement device emergency plans as potentially required to respond to an amusement device emergency, including the equipment's usual location and availability (e.g. location and model/inventory number of specific elevated work platforms that are nominated in amusement device emergency plans or that have been proven in practice drills as suitable for rescuing patrons off specific rides)
 - process for recording current working location of, and person in control of, amusement device emergency/rescue equipment when the equipment is not at its normal storage location (e.g. how to find a specific elevated work platform/equipment if the equipment is not at its storage location when an emergency happens)
 - any other relevant park processes that could have an impact on amusement device safety.
- development approvals for the current operations at the park, modification approvals, environmental licences and other statutory approvals and/or registrations
- safety documentation, studies or reports (e.g. safety management system)
- status of compliance with any hazard/safety-related conditions imposed by a development approval/consent for the park
- incident investigations (other than those associated with amusement devices), reports and action plans that could have an impact on amusement device safety
- coroner's reports and incident reports for previous amusement device incidents (including mobile rides and major amusement parks).
- review existing information and documents to determine their validity. Aspects to consider may include:
 - the assumptions and data on which they were based
 - appropriateness of the hazard and risk assessment techniques used
 - changes that may have occurred since the document was prepared (e.g. ride operating procedures, maintenance practices and environmental surroundings)
 - applicability to on-site public health and safety
 - suitability of acceptance criteria for risk
 - changes in knowledge (e.g. variations in maintenance practices, discontinuation of manufacturer support for components of rides, new incidents).
- compile a gap analysis, or similar, to determine and document what additional work is needed, such as improvements or extensions to existing documents and new work that will be required to complete the safety case. For example, the major amusement park operator may discover that:
 - certain circuit diagrams (required for fault analysis purposes) are missing and additional work is needed to obtain or prepare the circuit diagrams and/or
 - the design of an amusement device has been altered and action is needed to document the design verification by a competent person and submit the design alteration to the regulator.

4.3 A description of the methods to be used in preparing the safety case

This section of the safety case outline includes methods for ensuring that all the information contained in the safety case is accurate and up-to-date when the safety case is presented to the regulator.

This section should list the major tasks and activities identified in the gap analysis or similar process (above), and show the order and timetable for these tasks and activities and the links between them. The methodology and outcome of the gap analysis should be outlined and the proposed tasks and activities should be listed and briefly described. Where existing documents are to be used, they should be listed with a notation of any aspects that are known to require significant modifications.

Time may also be needed in the early stages for updating or revising existing documents and studies before proceeding to the next activity. For example, an existing risk assessment may have been limited to risks arising only when the ride is being operated. In this example, updating/revising the risk assessment may not be sufficient – the updating/revision may have to start at the hazard identification stage. The safety case must, so far as is reasonably practicable, address all amusement device incidents and amusement device incident hazards that could occur in relation to the park.

As a result of updating existing documents, a requirement for new studies/documents could be identified. The safety case outline will need to include time for creating these new documents. For the example outlined in the paragraph above, existing control measures may be focused on risks that could occur while a ride is being operated. An adequacy review may identify a need to consider risks at other times as well (e.g. during maintenance, refurbishment or decommissioning). New control measures may be identified as necessary, such as exclusion zones around the amusement device if a major inspection or major maintenance work is being carried out, or the device is being decommissioned. This could involve putting in place changes to patron circulation spaces and general evacuation paths in the park. A revised or new HAZID, emergency response and evacuation plan might be necessary. The preparation time for the revised or new plan will need to be included in the safety case outline.

The preparation of a safety case should include time for writing, peer review, approval processes (with the regulator) and overall quality assurance. The safety case outline should also describe the system to be used to ensure that the tasks and activities listed will be completed to the required standard and on time.

This includes resources for preparing the descriptive and analytical aspects of the safety case, such as demonstration of acceptable level of risk and justification of the selection of methodologies and controls, as well as the simpler information (e.g. information about the park location).

The regulator recognises that the timetable described in the safety case outline could change before or during the preparation of the safety case. The major amusement park operator should ensure that any changes do not adversely affect the quality or on-time completion of the safety case. The regulator should be notified of significant changes.

4.4 Details of the resources to be applied in preparing the safety case

The major amusement park operator should use this section of the safety case outline to demonstrate that adequate resources will be made available to prepare the safety case. It should include the number of people involved and their relevant knowledge and experience, the sources of technical information and information about any software used for risk evaluation.

The safety case outline should include details of the tasks assigned and the required timing, and list who is responsible for their completion. Information about staff expertise can be included here. Better resource allocation and timing are possible when interactions are understood. It may be useful to present the internal and external interactions in a flow chart.

Resource allocation plans may be developed for the safety case overall, including the safety management system and its associated emergency plan and safety assessment. Alternatively, resource allocation plans may be developed for each individual document.

The regulator recognises that the resources described in the safety case outline could change before or during the preparation of the safety case. The operator should notify the regulator of significant departures from the submitted safety case outline and ensure that the quality of the safety case is maintained at an acceptable level.

4.5 *The people to be involved and their relevant knowledge and experience*

This section should describe who will be primarily responsible for, or have key involvement in, the tasks and activities, and their level of involvement. It should also describe the knowledge and skills they bring to the activities and tasks. Names and/or position descriptions may be used, along with a brief outline of relevant skills, knowledge and experience.

4.6 *Sources of technical information*

Sources of technical information may include:

- a list of amusement devices in the park (with associated information – refer to ‘establish the context’ box in Figure 2: Flowchart for managing risks associated with amusement devices at a major amusement park)
- reports, including annual inspection reports, major inspection reports, or other assessment reports (e.g. for repair or cost-benefit of major refurbishment)
- analyses of amusement device log books (such as to identify recurrent faults or risks)
- amusement device design registration records and design alteration registration records
- audit reports (such as maintenance audits, safety management system audits, risk management audits and compliance audits)
- hazard identification and risk assessments
- design specifications, plant specifications and limitations
- safety studies (such as fire safety, explosion safety, safety integrity level or reliability studies)
- emergency plans
- frequency data
- toxicity data (e.g. chemical use in water parks)
- reports and analyses, of serious incidents and of incidents including near misses, at the park or elsewhere
- security breach reports
- on-site consequence modelling reports
- information published by regulators or industry groups
- relevant research, including published papers.

The safety case outline should include details of the information intended to be used. Where this information already exists, give details such as full titles, document owner, date, edition, version numbers or web address. The details should be sufficient to enable the regulator to identify readily the documents and to obtain copies.

4.7 *Software details*

Details of software and the type of modelling done in any existing studies and the software to be used for any modelling, risk analysis and evaluation should be included in the safety case outline.

4.8 *A description of consultation*

This section of the safety case outline contains a description of the consultation with workers that occurred in the preparation of the safety case outline and will occur in the preparation of the safety case.

Sections 47 to 49 of the WHS Act require consultation with workers in various circumstances, including when preparing the safety case outline. They describe some important characteristics of

consultation, including sharing information with workers and providing opportunities for them to express their views and for these views to be considered.

Working in ‘organisational silos’ will detract from the success of implementing the safety case and safety management system, particularly in executing the emergency plan and conducting safety assessments. Various organisational sections (e.g. operations, engineering, safety sections) within the major amusement park operation will need to allow for the sharing of resources to develop these documents.

Major amusement park operators may also describe in this section how they plan to liaise with emergency services organisations with responsibility for the area in which the park is located. Liaison with emergency service organisations is required in developing the emergency plan for the park.

For further information on consultation, refer to the *Work health and safety consultation, co-operation and co-ordination Code of Practice 2011*.

4.9 Amusement device emergency plan

The safety case outline must include a draft of the amusement device emergency plan or how a draft plan is to be prepared. The requirements are summarised in Table 4.

Table 4 WHS Regulation requirements – Amusement device emergency plan (section 608N)

Regulation	Requirement (Note: this table summarises the requirement. It is not a direct quotation of the regulation.)
608N	<p>Amusement device emergency plan</p> <p>Section 608N requires that an amusement device emergency plan for the park must —</p> <ul style="list-style-type: none"> • address all health and safety consequences of an amusement device incident occurring • include all matters stated in schedule 18B of the WHS Regulation • provide for testing of emergency procedures, including the frequency of testing • be developed in consultation with the emergency service organisations with responsibility for the area in which the park is located • address any recommendation made by the emergency service organisations consulted in relation to: <ul style="list-style-type: none"> ○ the testing of the amusement device emergency plan, including the way in which it will be tested, the frequency of testing and whether the emergency service organisations will take part in the testing ○ notifying emergency service organisations about amusement device incidents ○ what other incidents or events at the park should be notified to the emergency service organisations • be kept (as a copy) at the park • be given (as a copy) to: <ul style="list-style-type: none"> ○ the emergency service organisations consulted ○ any other relevant emergency service organisations • be tested in accordance with the recommendations made by the emergency service organisations consulted before applying for a licence for the park • be implemented, as soon as possible, if an amusement device incident occurs at the park.

	<p>The major amusement park operator must notify the regulator, and the emergency service organisations with responsibility for the area in which the park is located, of the occurrence of an amusement device incident which the emergency service organisation has recommended for notification. The operator must also notify about any other incident or event that the plan states should be notified to these organisations. In addition to these notifiable incidents/events, there could be incidents/events, which do not have to be notified to the emergency services, but must be notified to the regulator under other legislative requirements.</p> <p>Note—the requirement to prepare and to implement an amusement device emergency plan applies in addition to section 43 (Duty to prepare, maintain and implement emergency plan).</p>
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If a completed draft amusement device emergency plan is not submitted with a safety case outline, then as a minimum, the 'draft of the emergency plan to be prepared' should include:

- all headings and sections which the completed amusement device emergency plan will have when it is completed
- a summary for each heading of what information is already available and how the extra information relevant to each heading will be sourced and collated
- a complete emergency plan for at least one amusement device as an example of what is going to be prepared for other amusement devices at the park.

4.10 Other inclusions (regulation 608H(1)(f) to (h))

The safety case outline must also include:

- relevant information about each amusement device at the park including all of the following:
 - the name of the amusement device
 - the manufacturer of the amusement device
 - the class of the amusement device under section 2.1 of AS 3533.1
 - the plant design registration number of the device (if any) issued by the regulator
 - if known, the year the amusement device was manufactured or first commissioned.
- a summary of any arrangements that are to be made in relation to:
 - annual inspections of amusement devices at the park
 - major inspections of amusement devices at the park
 - maintenance, inspection and testing of amusement devices at the park
 - the security of the park
 - how the operator proposes to monitor the effectiveness of the safety case
 - instruction, training, and determining competency of operators of amusement devices
 - instruction and training given, or to be given, by the major amusement park operator to a person who maintains, inspects or tests an amusement device at the park
 - keeping of log books for amusement devices.

It is preferable that each of the above listed items are presented in their own section in the safety case outline. However, if there is significant overlapping information between items listed above, then for the sake of conciseness, they may be presented in a combined section. In all cases, the information relevant to each point in the list must be clearly and readily identifiable as relevant to that point.

5. Alteration of safety case outline

5.1 Alteration – Actions by regulator

If the regulator is not satisfied that a safety case outline will lead to the development of a safety case that will meet the requirements of the WHS Regulation, the regulator can request the major amusement park operator to alter the safety case outline. In this case, the regulator provides a written notice to the operator, who is given an opportunity to make a submission in relation to the request. After considering the operator's submission (if any) the regulator will advise the operator what alterations (if any) are required and the reasons they are required. Refer to Table 5 for the regulatory requirements on alteration of a safety case outline.

Table 5 WHS Regulation requirements – Alteration of safety case outline (section 608I)

Regulation	Requirement
608I	<p>Alteration</p> <ul style="list-style-type: none">• If the regulator is not satisfied that a safety case outline provided by the operator of a major amusement park will lead to the development of an amusement device safety case that complies with section 608R, the regulator may require the operator to alter the outline.• If the regulator proposes to require an operator to alter a safety case outline, the regulator must give a written notice to the operator:<ul style="list-style-type: none">○ informing the operator of the proposed requirement and the reasons for it○ stating that the operator may make a submission to the regulator in relation to the proposed requirement○ stating the date (being not less than 28 days) by which the submission must be made.• The regulator must:<ul style="list-style-type: none">○ if the operator has made a submission in relation to the proposed requirement to alter a safety case outline—consider that submission○ regardless of whether the operator has made a submission—decide whether or not to require the operator to alter the outline○ within 14 days after deciding, give the operator written notice of the decision, including details of the alteration (if any) required and the reasons why it is required.• The operator must alter the outline as required.• The operator must give the regulator a copy of a safety case outline that has been altered:<ul style="list-style-type: none">○ under this section; or○ by the operator on the operator's initiative.• The safety case outline as altered becomes the safety case outline for the major amusement park.

5.2 Alteration – Actions by major amusement park operator

In addition to altering a safety case outline on the request of the regulator, the operator of an amusement park may alter a safety case outline on the operator's own initiative (section 608I(5)) and submit the revised safety case outline to the regulator. If the regulator is not satisfied with the altered safety case outline, the regulator can request the operator to revise it.

The operator must also give notice to the regulator if there is a change to information regarded as a material particular in the safety case outline (section 608J). A material particular is any information the regulator relied upon, or would reasonably be expected to rely upon, in making a decision. The operator must give written notice to the regulator within 14 days after the operator becomes aware of the change.

6. Checklist

Use this checklist to ensure the safety case outline for the major amusement park has addressed the requirements.

1.	A written plan for the preparation of the safety case, including key steps and timelines, with reference being made to each element of the safety case.	
2.	A description of the methods to be used in preparing the safety case, including methods for: <ul style="list-style-type: none"> identifying hazards and risks associated with amusement devices at the park analysing and determining control measures for identified hazards ensuring the accuracy of information in the safety case. 	
3.	List of amusement devices in the park and the process for collecting, collating and analysing the following information on each device at the park: <ul style="list-style-type: none"> records of statutory compliance (e.g. plant design and item registration) engineering records including circuit diagrams, critical component lists, spare parts and inventory control for amusement devices with complex control systems, names of qualified maintenance personnel and process to maintain competency record of amusement device incidents (whether or not they resulted in property damage, serious injuries or deaths) (internal and external) identified amusement device hazards and adopted control measures safety alerts (issued by manufacturer, regulator or industry associations) routine maintenance and inspection programmes annual and major inspection schedules record of design alterations operator competency and training emergency procedures. 	
4.	Details of the resources that will be applied to the preparation of the safety case including: <ul style="list-style-type: none"> the number of people to be involved and their relevant knowledge and experience and sources of technical information the software to be used for risk evaluation (if any), together with information to support the appropriateness of the software for the intended use. 	
5.	A description of the consultation with workers and with emergency service organisations that: <ul style="list-style-type: none"> occurred in the preparation of the safety case outline will occur in the preparation of the safety case. 	
6.	A draft of the emergency plan prepared or to be prepared.	
7.	A summary of any arrangements that are to be made in relation to annual inspections of amusement devices at the park.	
8.	A summary of any arrangements that are to be made in relation to major inspections of amusement devices at the park.	
9.	A summary of any arrangements that are to be made in relation to maintenance, inspection and testing of amusement devices at the park.	

10.	A summary of any arrangements that are to be made in relation to the security of the major amusement park.	
11.	A summary of any arrangements that are to be made in relation to how the operator proposes to monitor the effectiveness of the safety case.	
12.	A summary of any arrangements that are to be made in relation to instruction and training for amusement device operators.	
13.	A summary of any arrangements that are to be made in relation to instruction and training for maintenance, inspection and/or testing personnel.	
14.	A summary of any arrangements that are to be made in relation to keeping of log books for amusement devices.	
15.	<p>A cover page listing:</p> <ul style="list-style-type: none"> • the name and address of the major amusement park • the name, title and contact details for the person whom the Workplace Health and Safety Engineering Unit should contact if details in the safety case outline require clarification • the date of preparation of the safety case outline. 	

Appendix A – Definitions

Amusement device emergency plan means an emergency plan prepared for a major amusement park under section 608N of the WHS Regulation.

Amusement device hazard means a hazard that could cause, or contribute to causing, an amusement device incident.

Amusement device incident means an incident as defined in section 608B of the WHS Regulation, as summarised in the text box below.

An amusement device incident at a major amusement park is an occurrence that:

- involves an amusement device at the park and
- exposes, or potentially exposes, a person to a serious risk to health or safety where that risk emanates from an exposure, or potential exposure, to the occurrence.

Without limiting the above definition, an occurrence includes:

- for the whole or any part of an amusement device or any plant or structure related to the device — a collapse, failure, malfunction, mechanical breakdown or overturning of the device, plant or structure; or
- an implosion, explosion or fire, at the park, that involves an amusement device or any plant or structure related to the device.

Note—the WHS Regulation does not use the term ‘near miss’ but incorporates the concept by reference to the ‘potential exposure of a person to a serious risk to the person’s health or safety’. See sections 608O(3)(a) and 608R(4)(b), which relate to the safety management system and the safety case.

AS 3533.1 means AS 3533.1—2009 (Amusement rides and devices Part 1: Design and Construction).

Competent person, for an annual inspection under section 241 and a major inspection under section 241A of the WHS Regulation, means a person who:

- for an inflatable device (continuously blown) with a platform height less than 9 m — has the knowledge and skills to carry out the inspection; or
- for any other amusement device:
 - has the knowledge and skills to carry out the inspection and
 - is registered under a law that provides for the registration of professional engineers when the inspection is carried out. (Note: in Queensland, this means the *Professional Engineers Act 2002*).

Control measure, in relation to a risk to health and safety, means a measure to eliminate or minimise the risk.

Critical component, of an amusement device, means a component of the device that would, if the component failed to function properly, be likely to cause a risk to the health or safety of a person.

Emergency service organisation under Schedule 19 of the WHS Regulation means:

- the Queensland Ambulance Service under the *Ambulance Service Act 1991*; and
- the Queensland Fire and Emergency Service under the *Fire and Emergency Services Act 1990*.

Failure of a control measure means:

- if the risk control measure is a positive action or event: the non-occurrence or the ineffective occurrence of that action or event; or
- if the risk control consists of a limitation on an operational activity, process or procedure: the breach of that limitation.

High structure water slide means an amusement device consisting of a slide:

- where water facilitates patrons to slide easily, predominantly under gravity, along a static structure and
- that is attached to a structure which is:
 - at least 10 metres in height and
 - used by patrons to access the slide.

Licensed major amusement park means a major amusement park licensed under the WHS Regulation, Chapter 9A.

Major amusement park means a workplace that meets the conditions defined in the WHS Regulation, section 608A(1), as summarised in the text box below.

A workplace is a major amusement park if:

- at least four amusement devices are located at the workplace; and
- at least one of the devices is:
 - an amusement device classified by section 2.1 of AS 3533.1 as a class 3 device, class 4 device or class 5 device; or
 - a high structure water slide; and
- each amusement device located at the workplace is used to conduct the business or undertaking at the workplace; and
- each amusement device located at the workplace is fixed at the workplace.

However, a major amusement park does not include a workplace at which all amusement devices located at the workplace are assembled, installed, operated or disassembled for a temporary event. Examples of temporary events include an agricultural show or school fete.

Major amusement park licence means a licence granted under the WHS Regulation, part 9A.7 in relation to a major amusement park.

Near miss is any accident that, but for mitigating effects, actions or systems, could have escalated into a major incident.

Operator, of a major amusement park, has the meaning as defined in section 608C of the WHS Regulation, as summarised in the text box below.

In relation to a major amusement park, the operator means the person conducting the business or undertaking of operating the park, who has:

- management or control of the park; and
- the power to direct that the whole park be shut down.

If more than one person is an operator of the park within the above meaning, the persons may nominate one of themselves as the operator of the park. For further details see the WHS Regulation, section 608C.

Relevant day has a meaning as defined in section 608A(3) of the WHS Regulation.

The relevant day for a workplace that is a major amusement park is:

- for an existing workplace that is a major amusement park – 1 May 2019 which is the commencement day of the *Work Health and Safety (Amusement Devices—Public Safety) Amendment Regulation 2019*; or
- otherwise—the day the workplace becomes a major amusement park.

Risk assessment involves considering what could happen if someone is exposed to a hazard and the likelihood of it happening.

Risk control means taking action to eliminate health and safety risks so far as is reasonably practicable, and if that is not possible, minimising the risks so far as is reasonably practicable.

Risk management in this guide means the processes of:

- identification of hazards and risks associated with amusement devices at the park
- safety assessment, including:
 - risk analysis (likelihood and consequences)
 - risk evaluation against risk criteria
- risk control (risk treatment)
- review and revision of:
 - control measures
 - effectiveness of the safety assessments
 - the emergency plan
 - the safety management system.

Safety assessment is the process by which the operator of a major amusement park systematically and comprehensively investigates and analyses all aspects of risks to health and safety associated with all amusement device incidents that could occur in the course of the operation of the major amusement park.

Safety case is a written demonstration of the technical, management and operational information covering the hazards and risks, that may lead to an amusement device incident at a major amusement park, and that covers the control of those hazards and risks, and which provides justification for the measures taken to ensure amusement device safety at the park.

Safety management system as set out in the WHS Regulation (sections 608O, 608Y and schedule 18C) means the comprehensive integrated system for managing all aspects of risk control in relation to the possible occurrence of an amusement device incident at a major amusement park and is used by the operator as the primary means of ensuring safe operation of the major amusement park.

SIL means safety integrity level. The term is associated with the reliability level of electronic control systems on plant (including amusement devices).

Appendix B – Further information

This section provides additional information regarding safety cases.

Note: Some of these references have been written specifically for different regulatory regimes and/or industries, but have some similarities to the requirements for major amusement parks under the WHS Regulation.

A guide to the control of major incident hazards regulations 2015

UK Health and Safety Executive ISBN 978 0 7176 6605 8: hse.gov.uk/comah/

(Although this guide is very specific to the hazardous chemical industry, it includes a section on preparing safety reports which may be useful to major amusement park operators preparing safety cases.)

Guidance note: safety case content and level of detail

National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA)
Revision 9, October 2015:

nopsema.gov.au/safety/safety-case/safety-case-guidance-notes/

Guidance on the preparation of a safety report to meet the requirements of Directive 96/82/EC as amended by Directive 2003/105/EC (Seveso II)

Joint Research Centre European Commission (Report EUR 22113 EN):

publications.europa.eu/en/publication-detail/-/publication/6276ab04-6026-4ac6-8e78-b2633a27d2c1/language-en

Guidelines on a major accident prevention policy and safety management system, as required by council directive 96/82/EC (Seveso II)

European Commission, Italy 1998

EUR 18123:

<https://publications.europa.eu/en/publication-detail/-/publication/942d65e1-4359-4356-9dd0-fa883f34a093/language-en/format-PDF/source-85767655>

Hazardous industry planning advisory papers (HIPAPs)

No.1 – Emergency Planning (HIPAP 1)

No.2 – Fire Safety Study Guidelines (HIPAP 2)

No.3 – Risk Assessment (HIPAP 3)

No.4 – Risk Criteria for Land Use Safety Planning (HIPAP 4)

No.5 – Hazard Audit Guidelines (HIPAP 5)

No.6 – Hazard Analysis (HIPAP 6)

No.7 – Construction Safety (HIPAP 7)

No.8 – HAZOP Guidelines (HIPAP 8)

No.9 – Safety Management System Guidelines (HIPAP 9)

NSW Department of Planning and Infrastructure: planning.nsw.gov.au/

Major hazard control: A practical manual

International Labour Organisation, Geneva 1993

Third impression (with corrections) ISBN: 92-2-106432-8:

www.ilo.org/wcmsp5/groups/public/---ed_protect/---protrav/---safework/documents/instructionalmaterial/wcms_235686.pdf

Major industrial hazards advisory papers (MIHAPs) (Drafts)

These documents provide relevant technical information but do not reflect legislative requirements in the WHS Regulation.

No. 1 – Safety Assurance

No. 3 – Hazard Identification, Risk Assessment and Risk Control

No. 6 – Training and Education

No. 9 – Incident Reporting and Investigation

NSW Department of Planning and Infrastructure planning.nsw.gov.au/ or workcover.nsw.gov.au/

Manual for the classification and prioritisation of risks due to major incidents in process and related industries

Inter-Agency Programme on the Assessment and Management of Health and Environmental Risks from Energy and Other Complex Industrial Systems

International Atomic Energy Agency, Vienna December 1993 and December 1996 (Rev. 1)

IAEA-TECDOC-727 and IAEA-TECDOC-727 (Rev. 1):

https://www-pub.iaea.org/MTCD/publications/PDF/te_727r1_web.pdf

Multi-level risk assessment

NSW Department of Planning and Infrastructure 2011:

planning.nsw.gov.au/Policy-and-Legislation/Hazards

Preparing safety reports: Control of major incident hazards regulations 1999

UK Health and Safety Executive HSG190

ISBN 9780717616879:

hse.gov.uk/pubns/priced/hsg190.pdf

References specific to amusement device industry

AS HB 167:2006 Security risk management

Standards Australia

AS ISO 31000:2018 Risk management – Guidelines

Standards Australia

Best Practice Review of Workplace Health and Safety Queensland Final Report (3 July 2017):

worksafe.qld.gov.au/laws-and-compliance/best-practice-review-of-workplace-health-and-safety-queensland

How to manage work health and safety risks Code of Practice 2011

Workplace Health and Safety Queensland:

[worksafe.qld.gov.au/ data/assets/pdf file/0003/58170/Manage-WHS-risks-COP-2011.pdf](https://worksafe.qld.gov.au/data/assets/pdf_file/0003/58170/Manage-WHS-risks-COP-2011.pdf)

Managing risks of plant in the workplace Code of Practice 2013

Workplace Health and Safety Queensland:

[worksafe.qld.gov.au/ data/assets/pdf file/0006/58173/Managing-risks-of-plant-COP-2013.pdf](https://worksafe.qld.gov.au/data/assets/pdf_file/0006/58173/Managing-risks-of-plant-COP-2013.pdf)

Fairgrounds and Amusement Parks: Guidance on Safe Practice

UK Health and Safety Executive - HSG175 (Third edition, published 2017)

ISBN 978 0 7176 6663 8:

hse.gov.uk/pubns/books/hsg175.htm

References for Effective Use of Bow Tie Analysis and Level of Protection Analysis (LOPA) for Risk Management

Barrier Diagram (Bow Tie) Quality Issues for Operating Managers

Pitblado, Dr. R and Weijand, P; *9th Global Congress on Process Safety*, Unpublished Presentation, American Institute of Chemical Engineers 2013

Is It Really an Independent Protection Layer

Dowell, A. M. III; American Institute of Chemical Engineers 2011

Published online 3 February 2011 in Wiley Online Library (wileyonlinelibrary.com). DOI 10.1002/prs.10428

Key Issues with Implementing LOPA (Layer of Protection Analysis) – Perspective from One of the Originators of LOPA

Bridges, W and Clark, T; *5th Global Congress on Process Safety and 11th Plant Process Safety Symposium*, American Institute of Chemical Engineers 2009

Lines of Defence/Layers of Protection Analysis in the COMAH Context

UK Health and Safety Executive:

hse.gov.uk/research/misc/vectra300-2017-r02.pdf

More Issues with LOPA – from the Originators

Dowell, A. M. III, and Bridges, W; *11th Global Congress on Process Safety*, Unpublished Presentation, American Institute of Chemical Engineers 2015

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