

The *Dams Safety Act 2015* and *Dams Safety Regulation 2019*

In 2013 the NSW Government initiated a review of the Dams Safety Act 1978 and its associated regulatory framework, resulting in the development of new legislation—the Dams Safety Act 2015

For the last forty-one years, the safety of NSW dams has been administered under the *Dams Safety Act 1978* (the 1978 Act). In lieu of having detailed requirements set out in specific regulations, the Dams Safety Committee administered the 1978 Act by publishing guidance sheets for dam owners to follow. Also, the 1978 Act had very limited penalty provisions.

The *Dams Safety Act 2015* (the 2015 Act) replaces the *Dams Safety Act 1978*. This new act required a dams safety regulation, *Dams Safety Regulation 2019*, to be made. The regulation sets out operational details and safety standards that declared dam owners must comply with to satisfy the provisions of the 2015 Act.

An Interim Dams Safety Advisory Committee was tasked with preparing for the new Act. This committee worked on regulatory and policy development and developed the dams safety standards.

The new Act and regulation commenced on 1 November 2019.

Dams Safety NSW

A new body, Dams Safety NSW, has been created under the new Act. Dams Safety NSW is tasked with regulating the safety of dams in NSW.

Dams Safety NSW is an agency comprising governing members with expertise in dam engineering, mine engineering, emergency management, dam operations and management, public safety risk analysis and best practice regulation. The new body will make decisions on how the regulation and standards are administered. A Chief Executive Officer is responsible for the day to day management of the operations of Dams Safety NSW and staff are employed by the Department of Planning, Industry and Environment to carry out Dams Safety NSW functions.

The regulatory framework comprises the 2015 Act and the 2019 Regulation and standards, which replaced the 1978 Act and guidance sheets, as shown in Figure 1.

The regulation and standards are legislative requirements, and penalties apply to declared dam owners who do not comply with the requirements. Dams Safety NSW will provide guidelines to assist declared dam owners to comply with the regulation.

Change process

Declared dam owners have a two-year transition period to implement new regulatory requirements. However, those dam owners who do not have operations and maintenance plans, or emergency plans, for their declared dams have six months from the commencement of the regulation (1 November 2019) to establish these.

During the two-year transition period Dams Safety NSW will conduct site visits/trial audits, and inform declared dam owners what they need to do to comply with the 2015 Act and regulation and to track the progress of implementation.

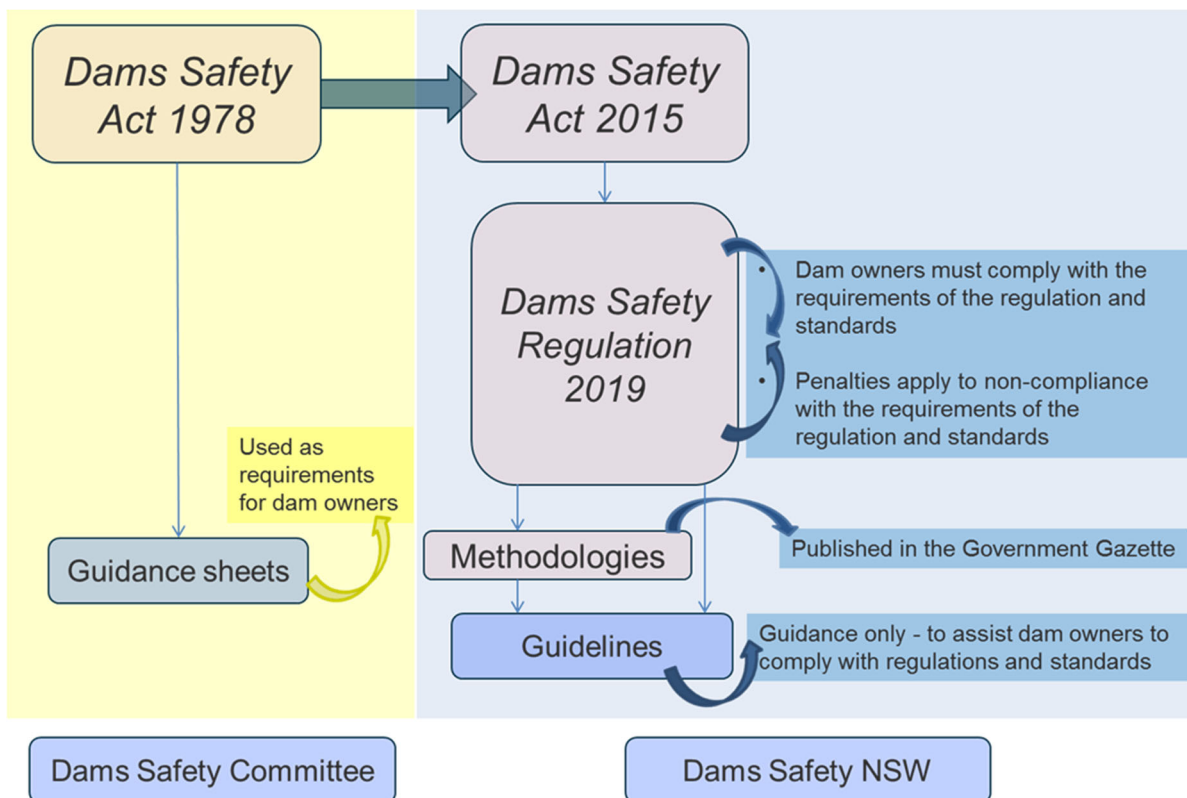


Figure 1. Old regulatory framework compared to the new regulatory framework

Goals and principles behind the changes

The goals of the changes brought about by the new regulation and standards are to:

- improve the safety management practices of declared dam owners
- improve the regulator's ability to enforce the requirements
- remove the potential conflict of interest resulting from dam owners being on the board of the Dams Safety Committee.

The key principles guiding the new regulation and standards are that:

- the responsibility of declared dam owners for dam safety is reinforced
- regulation is principle-based to the greatest extent possible
- declared dam owners must implement a safety management system based on an internationally recognised asset management system
- declared dam owners must make safety risk decisions about their dams
- declared dam owners must mitigate dam safety risks 'so far as is reasonably practicable'
- Dams Safety NSW takes a regulatory oversight role by auditing declared dam owners' systems to determine if the regulation and standards are being complied with and will enforce the regulation and standards through a proportionate response to non-compliance backed by a range of new penalties.

Summary of changes introduced by the new legislation

The following tables give a side-by-side comparison of practices under *the Dams Safety Act 1978* and those introduced by the new Act, regulation and standards on 1 November 2019.

Table 1. General arrangements for dam safety

<i>Dams Safety Act 1978</i>	<i>Dams Safety Act 2015 and Dams Safety Regulation 2019</i>
Dams were 'prescribed' dams.	Dams are 'declared' under the new act. All existing prescribed dams become declared dams.
Dams were 'prescribed' if their consequence category was 'significant' or above, if they were over 15 m high, or if they retained highly reactive, acid or toxic tailings.	Dams may be 'declared' if they were already a prescribed dam, if they are over 15m high, or if Dams Safety NSW is reasonably satisfied that the failure of the dam would endanger a life, or result in a major or catastrophic level of severity of damage or loss (generally if the dam has a consequence category of significant, or above). Dams Safety NSW may direct dam owners to carry out a preliminary assessment to determine if it is a dam that needs to be declared. Once declared, dam owners must carry out a full consequence category assessment.
Consequence categories were: <ul style="list-style-type: none"> • Extreme consequence • High A consequence • High B consequence • High C consequence • Significant consequence • Low consequence • Very low consequence 	The consequence categories defined in the regulation are the same as the previous categories.
Dam owners were required to submit the dam design team to the Dams Safety Committee (DSC) for approval, and were subsequently required to submit dam designs to the DSC for approval.	Submission of dam design teams and dam designs to Dams Safety NSW for approval is not required. Design, construction, commissioning and decommissioning work for a declared dam must be carried out under an AS/NZS ISO 9001:2016 quality management system. For a declared dam in the extreme or high category, dam designs must be reviewed by an independent, competent person.
DSC Guidance Sheets were used as 'requirements' for prescribed dam owners	Guidelines and templates, for example for dam safety management systems, will be produced to assist declared dam owners to comply with the new requirements.

<i>Dams Safety Act 1978</i>	<i>Dams Safety Act 2015 and Dams Safety Regulation 2019</i>
The Dams Safety Committee reviewed surveillance reports and recommended safety measures for dams.	After the two-year transition period, it is anticipated that Dams Safety NSW will conduct a program of audits of dams to determine if declared dam owners are complying with the regulation and standards.
Dam owners provided surveillance reports to the Dams Safety Committee on a five-yearly basis (annually for some dams that could undergo rapid changes).	Declared dam owners do not need to provide surveillance reports to Dams Safety NSW. Declared dam owners need to provide an annual report to Dams Safety NSW on their compliance with dam safety standards.

Table 2. Consequence category assessment

<i>Dams Safety Act 1978</i>	<i>Dams Safety Act 2015 and Dams Safety Regulation 2019</i>
A review, which includes a consequence assessment, was required every 15 years. For significant category dams this was required every 20 years.	A declared dam consequence category assessment must be carried out: <ul style="list-style-type: none"> • within six months of a dam being declared • every 15 years • if the dams consequence category is likely to change due to a proposed modification • if the dams consequence category is likely to change due to a change in population at risk or a change in the estimated severity of damage and loss due to failure of the dam • if the owner of the declared dam is required by Dams Safety NSW. <p>The consequence category assessment methodology is largely unchanged from existing requirements, except that financial/infrastructure, environmental, health and social impact criteria are more clearly defined.</p>
Consequence category assessments needed to be reviewed by a competent person.	Consequence category assessments for extreme or high category declared dams (only) need to be reviewed by a competent person who is independent of the consequence category assessment process.

Table 3. Management systems

<i>Dams Safety Act 1978</i>	<i>Dams Safety Act 2015 and Dams Safety Regulation 2019</i>
A Safety Management System was required for prescribed dams.	<p>Declared dam owners must document and implement a Dam Safety Management System that complies with AS ISO 55001 2014 Asset Management — Management Systems—Requirements</p> <p>This involves the creation and maintenance of a dam safety management system manual.</p>

Table 4. Risk management

<i>Dams Safety Act 1978</i>	<i>Dams Safety Act 2015 and Dams Safety Regulation 2019</i>
AS 4360 was referenced as the basis for a dam safety risk management framework.	<p>As part of the dam safety management system, a declared dam owner must establish, implement and maintain a risk management framework.</p> <p>Guidance on an appropriate risk management framework is contained in ISO AS 31000:2009—Risk management principles and guidelines.</p>
A review was carried out when the DSC determined it was required.	<p>A risk review report is required every five years.</p> <p>Declared dam safety risk decisions are based on individual and societal risk ratings that need to be better than a safety threshold. The safety threshold aligns with that developed by ANCOLD, Australia's peak industry body for dams.</p>
Dam safety risk decisions were based on 'as low as reasonably practicable' (ALARP) principles.	Once below the safety threshold, declared dam safety risk decisions are based on 'so far as is reasonably practicable' (SFAIRP) principles.

<i>Dams Safety Act 1978</i>	<i>Dams Safety Act 2015 and Dams Safety Regulation 2019</i>
<p>Gross disproportionality factors were recommended to apply to the value of human life calculations within a cost-benefit analysis.</p>	<p>There is no requirement to apply gross disproportionality factors to the value of human life calculations within a cost-benefit analysis.</p> <p>With this approach, Dams Safety NSW is proposing to align with NSW Treasury guidelines on cost-benefit analysis, which do not apply a disproportionality factor.</p> <p>Some regulators, for example in transport, recommend in their guidelines that a disproportionality factor may be applied as follows: <i>“There is no guidance from the law courts or otherwise on what represents a level of gross disproportion. It is entirely up to the duty holder under the appropriate legislation to determine whether the cost is grossly disproportionate. Hence CBA alone cannot justify a safety related decision.”</i></p> <p>Under the Dams Safety Regulation 2019, a declared dam owner may apply a disproportionality factor if they consider that it is appropriate and prudent to do so. A dam owner needs to consider the sensitivity of factors in the decision-making process and whether the cost is grossly disproportionate to the risk.</p>
<p>Safety reviews were required every 15 years.</p>	<p>A safety review is required every 15 years or if:</p> <ul style="list-style-type: none"> • a deficiency or weakness is identified in the dam • there is a change (other than a minor change) to the accepted technology or methods used in one of the relevant specialities or in the design criteria for dams • the consequence category of the dam is changed • Dams Safety NSW gives written notice to the owner of the dam requiring a safety review of the dam to be carried out.
<p>A peer review of the safety review report for extreme and high consequence dams needed to be carried out.</p>	<p>A peer review of safety reviews is required for high and extreme consequence dams.</p> <p>Safety review risk decisions are based on the same principles and criteria as for the risk reviews.</p>

Table 5. Incident reporting

<i>Dams Safety Act 1978</i>	<i>Dams Safety Act 2015 and Dams Safety Regulation 2019</i>
A formal incident reporting system was required.	Incident reporting requirements are more clearly defined.

Table 6. Operations and maintenance plans

<i>Dams Safety Act 1978</i>	<i>Dams Safety Act 2015 and Dams Safety Regulation 2019</i>
Dam owners were required to document and implement an operations and maintenance plan.	Operations and maintenance plans need to be prepared and implemented. The requirements are more clearly defined in the regulation.
Operations and maintenance plans needed to be updated every five years.	Operations and maintenance plans for dams in the extreme and high categories need to be updated annually. Declared dams in other categories need their plans to be updated every five years.

Table 7. Emergency plans

<i>Dams Safety Act 1978</i>	<i>Dams Safety Act 2015 and Dams Safety Regulation 2019</i>
Dam owners needed to document and implement an emergency plan.	Emergency plans need to be prepared and implemented. The requirements are more clearly defined in the regulation.
Emergency plans needed to be updated annually, and reviewed and tested at least every five years.	<p>Emergency plan contact details need to be updated annually (as per previous practice).</p> <p>Emergency plans need to be reviewed and updated every five years, but also within one month:</p> <ul style="list-style-type: none"> • if emergency management arrangements change • if there is a significant change in the population at risk or potential loss of life • when there is a change to the consequence category of the dam.

<i>Dams Safety Act 1978</i>	<i>Dams Safety Act 2015 and Dams Safety Regulation 2019</i>
<p>Exercises needed to be conducted at least once every five years.</p>	<p>Emergency exercises need to be carried out with declared dam owner operations staff at least once every three years, for all dams. This may be a desktop exercise.</p> <p>For declared dams with consequence categories above High C, practical emergency exercises need to be carried out with other agencies (as far as practicable) identified in the emergency plan at least once every five years.</p>
<p>Emergency plans needed to be provided to the Dams Safety Committee in hard copy and electronic form.</p>	<p>Emergency plans need to be provided to Dams Safety NSW in a form determined by Dams Safety NSW.</p>

Table 8. Record keeping

<i>Dams Safety Act 1978</i>	<i>Dams Safety Act 2015 and Dams Safety Regulation 2019</i>
Dam owners were recommended to have in place an effective long-term archiving system for all important documentation relating to the dam, including reports, geotechnical data, inspection sheets, monitoring results, operation and maintenance records and design and construction drawings.	<p>The regulation includes a clearer definition of what records declared dam owners need to keep.</p> <p>Records associated with the operation of the dam safety management system are included in the list of records to be kept.</p>

Table 9. Mining

<i>Dams Safety Act 1978</i>	<i>Dams Safety Act 2015 and Dams Safety Regulation 2019</i>
The Dams Safety Committee provided the conditions that were included in mining leases and which were required to be followed when mining in notification areas.	<p>Dams Safety NSW does not specify mining operation conditions.</p> <p>Consent authorities must refer an application for development consent for the carrying out of any mining operations under the <i>Mining Act 1992</i> in a notification area to Dams Safety NSW. The consent authority must take into consideration any matters that are raised by Dams Safety NSW.</p> <p>Dams Safety NSW declares notification areas surrounding, or in the vicinity of, a declared dam.</p>