

Implementation of 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.

An Interim Dams Safety Advisory Committee (which was set up under the 2015 Act) developed, in conjunction with the government, the Dams Safety Regulation 2019 (2019 Regulation) to give force to the new act. The new Act and 2019 Regulation commenced on 1 November 2019 and together improve the framework used to manage and ensure the safety of dams in NSW.

This document addresses some frequently asked questions about the new legislation and the changes to dams safety regulatory administration.

Dams Safety NSW

What is Dams Safety NSW?

Dams Safety NSW was established under the *Dams Safety Act 2015*. It is an agency comprising governing members appointed by the Minister and includes the Dams Safety NSW Chief Executive Officer. The appointed members have expertise in dam engineering, mine engineering, emergency management, dam operations and management, public safety risk analysis and best practice regulation. The new body is tasked with making decisions on how the regulation and standards are administered.

Dams Safety NSW replaces the Dams Safety Committee (DSC).

Why was Dams Safety NSW formed?

Dams Safety NSW was part of the reforms that introduced the *Dams Safety Act 2015*.

Concerns were raised by the Independent Pricing and Regulatory Tribunal of NSW (IPART) in 2010, and the NSW Commission of Audit in 2012, that the existing regulatory system was not operating efficiently and potentially impeding productivity in the sector. The NSW Government announced a review of the *Dams Safety Act 1978* and the DSC. Consultancy firm KPMG worked with key stakeholders within the NSW dam industry and provided a review report in 2013.

The review made 14 recommendations to the NSW Government about how to improve the safety regulation of dams. Based on the recommendations of the KPMG review, the new dams safety legislation, the *Dams Safety Act 2015*, was developed and was passed in September 2015.

What was a prescribed dam?

A prescribed dam was listed in a schedule to the *Dams Safety Act 1978*. A dam was added to the list of prescribed dams when it met a set of criteria published by the DSC. The criteria were based on the consequences of failure of the dam.

What is a declared dam?

All dams that were previously prescribed are declared dams under the *Dams Safety Act 2015*. A dam is added to the list of declared dams when it meets a set of criteria in the regulation and standards. The criteria are based on the consequences of failure of the dam. Declared dams appear on a list of declared dams that Dams Safety NSW publishes on its website and each dam is published in the NSW Government Gazette.

What criteria will be used when considering a dam for declaration?

The test for deciding whether a dam may be a declared reflects the previous situation for prescribed dams.

A dam may be 'declared' if a 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 consequence category is 'significant' or above), if they are over 15 metres high.

Will Dams Safety NSW only focus on declared dams?

Yes. Dams Safety NSW will focus specifically on the safety of declared dams. Keep in mind that all previously prescribed dams are declared dams under the *Dams Safety Act 2015*.

What is the structure of Dams Safety NSW?

Dams Safety NSW members are independent and are appointed by the Minister for Water, Property and Housing.

Dams Safety NSW member expertise includes dam engineering, mine engineering, emergency management, dam operations and management, public safety risk analysis and best-practice regulation.

Dams Safety NSW staff are employees of the Department of Planning, Industry and Environment, with a Chief Executive Officer responsible for the day-to-day management of the agency.

What happened to the Dams Safety Committee?

The DSC has been replaced by Dams Safety NSW.

What range of functions will Dams Safety NSW perform?

Dams Safety NSW will perform a wide range of functions, including managing regulatory compliance and providing advice and recommendations to the Minister. Dams Safety NSW's regulatory focus will be on those dams that have a sufficiently high consequence of failure to require regulation and additional oversight as declared dams. Dams Safety NSW will also have a role in researching dam safety generally.

What is the main role of Dams Safety NSW?

Dams Safety NSW's main role is to assure the safety of all declared dams.

We expect that Dams Safety NSW will do this by auditing declared dam owners' systems, processes and procedures to check if declared dam owners are complying with the requirements of the *Dams Safety Regulation 2019*. Dams Safety NSW can enforce the regulation through a range of new penalties.

Dams Safety NSW will provide guidance to declared dam owners on how to comply with the regulation and standards.

Dams Safety NSW is responsible for declaring notification areas surrounding, or in the vicinity of, a declared dam. If a mining company applies to a consent authority to mine in a notification area Dams Safety NSW will raise any dam safety matter with the relevant consent authority. The consent authority must take these matters into account before granting development consent for any mining operations under the *Mining Act 1992* in the notification area. Dams Safety NSW is responsible for the development of guidance material on the process.

When do declared dam owners have to comply with the regulations?

Declared dam owners have two years to fully comply with the changes required by the regulation and standards from 1 November 2019, the date they came into force.

An exception to this is for those dams that do not have operations and maintenance plans or emergency plans—the declared dam owners have six months to establish these plans.

During the two-year transition period, Dams Safety NSW will conduct site visits and trial audits to help declared dam owners progress the development of their systems and processes to meet the requirements of the regulation and standards.

What are the differences between the new legislation and the guidelines

The regulation and standards include statements that dam owners must comply with and are enforceable by law. This is emphasised in the regulation by the use of the word ‘must’ to indicate when a statement is a compulsory regulatory requirement.

The regulation also refers to Australian Standards and International Organization for Standardization documents such as AS ISO 9001 and AS ISO 55001 for additional compulsory requirements. The Australian Standards use the word ‘shall’ to indicate when a statement is a compulsory requirement.

Penalties apply for declared dam owners who do not comply with the requirements of the regulation and standards. Legal action can be taken against those dam owners that don’t meet the requirements.

Guidelines help declared dam owners to comply with the requirements of the act, regulation and standards, but the guidelines themselves do not contain compulsory requirements.

What happens if a declared dam owner is non-compliant?

There is a transition period of two years (from 1 November 2019) for declared dam owners to establish systems and processes to support compliance. This transition period is reduced to six months for dam owners who do not have operations and maintenance plans, or emergency plans, for their declared dams.

If a dam owner is not compliant with the regulation or standards after the initial two-year transition period, Dams Safety NSW can take action proportionate to the circumstances of the non-compliance.

Proportionate action takes into account the impact of the non-compliance and the approach the declared dam owner has taken in dealing with the issue. Dams Safety NSW can use a range of responses to non-compliance depending on the circumstances. It can, under the act and regulation, issue audit reports, advisory letters, warnings (written and verbal), compliance notices, directions—including stop work orders and emergency orders—and penalty notices. Dams Safety NSW can prosecute offenders if necessary.

What are the penalties for non-compliance?

The *Dams Safety Act 2015* lists the maximum penalties for not complying with the regulation and standards.

The maximum penalty in the act is \$1,100,000 for a corporation and \$247,500 for an individual.

Are there new safety risks that declared dam owners have to manage?

Declared dam owners do not need to manage any additional dam safety risks. However, there is an emphasis on a declared dam owner taking responsibility for dam safety risk decisions and for

the systematic management of dam safety risks through a dam safety management system. The dam safety management system will be audited by Dams Safety NSW.

What requirements remain the same?

Many policy positions adopted by the DSC have been incorporated into the regulation and standards. The following remains unchanged for declared dams:

- consequence categories for dams
- requirements to implement a dam safety management system
- the need to carry out safety reviews
- independent peer reviews of consequence category assessments for 'extreme' and 'high' consequence dams
- the need to prepare operations and maintenance plans
- the need to prepare an emergency plan, keep it current and have it tested.

Are Dams Safety Committee guidance sheets still relevant?

Yes. Much of the material in DSC guidance sheets is still useful (although not a mandatory part of the new requirements). Dams Safety NSW intends to prepare new guidelines for declared dam owners to help them comply with the regulation and standards. The material in the guidance sheets will be useful in preparing these new guidelines.

Will Dams Safety NSW need to approve dam designs?

Dams Safety NSW will not approve any dam safety document for the design, construction, modification or operation of a declared dam. However, design, construction, commissioning and decommissioning work for a declared dam must be carried out under an AS/NZS ISO 9001:2016 quality management system.

Dams Safety NSW will carry out audits of declared dam owners' systems, processes and procedures to determine a dam owner's compliance with the requirements of the regulation and standards. Dams Safety NSW will clearly communicate with declared dam owners if the owners need to make a change to systems or practices.

How often will Dams Safety NSW carry out audits?

It is anticipated that an audit of a declared dam owner's safety management system would be conducted every two to three years.

We expect Dams Safety NSW will take a risk-based approach to prioritising audits, initially determined by the consequence of dam failure and then by the likelihood of non-compliance. Dams Safety NSW will also conduct follow-up audits of identified poor performers. It may also undertake specific regulatory projects where there are particular topics of concern. For example, these may involve audits of a particular type or class of dam to assure safety.

Will mining notification areas change?

Yes. It is likely that changes to existing notification areas will be made. Dams Safety NSW will be responsible for managing requests for changes to notification areas.

Reporting

What are the reporting requirements for declared dams?

Under the *Dams Safety Act 2015* and the regulation and standards, a declared dam owner must provide to Dams Safety NSW:

- an annual report that demonstrates a declared dam owner's compliance with safety standards
- incident reports for a range of serious incidents
- consequence category assessment reports
- risk assessment reports if the declared dam societal or individual risk rating is higher than the safety threshold.

What information is required in a dam's annual report?

The *Dams Safety Act 2015* requires an owner of a declared dam to publish a report demonstrating the owner's compliance with dams safety standards.

Dams Safety NSW will publish a document detailing the full requirements of an annual report within 12 months of the commencement of the act and regulation. It is likely the report will need to contain information around:

- incident reporting
- dam configuration changes
- a summary of corrective actions taken
- a summary of emergency plan exercises carried out.

Do dam owners need to provide surveillance reports to Dams Safety NSW?

No. Dam owners do not need to submit surveillance reports to Dams Safety NSW.

However, many elements covered in the surveillance reporting practice are a good way to demonstrate compliance with the regulation.

What should be included in a dam's incident reporting system?

The incident reporting system needs to ensure that incidents and near misses are reported to the declared dam owner. This information is a valuable resource for improving the safety management system through the management system's corrective action process.

The incident reporting system must also ensure that incidents of the type listed in section 19 of the regulation and standards are reported to Dams Safety NSW.

Consequence category assessment

How are consequence category assessments made?

Dams Safety NSW has published, in the NSW Government Gazette, the method that declared dam owners must follow when carrying out a consequence category assessment.

Who can carry out consequence category assessments and reviews?

Consequence category assessments and reviews must be carried out by a competent person. A competent person is defined in the regulation.

For a declared dam in the 'extreme' or 'high' category, the consequence category assessment must be reviewed by a competent person who is independent of the original consequence category assessment process.

Are there changes to the assignment of consequence category tables?

No. These tables will essentially be the same as those adopted by the DSC.

Are there changes to the criteria for estimating the severity of damage and loss within a consequence assessment?

Yes, there are changes. The criteria for estimating the severity of damage and loss within a consequence category assessment are similar to the previous criteria, but some wording has been changed to clarify the requirements.

Management systems

Why do AS ISO 55001 and AS/NZ ISO 9001 feature so heavily in the regulation?

Management systems based on AS/NZS ISO 9001 and AS ISO 55001 can be used to effectively support principle-based regulation.

The regulation and standards define what must be done, and the declared dam owner can use the standards to structure their management systems to suit the size and complexity of their dam and dam operations.

The use of management system standards is also consistent with asset management elements required by the NSW *Local Government Act 1993* and included within operating licences of many state-owned corporations.

Other industries have, for a long time, used these types of management system standards as the basis for assuring safety.

How do declared dam owners check that dam designers and constructors have management systems in accordance with AS/NZ ISO 9001?

The regulation and standards require a declared dam owner to ensure that any organisation carrying out design, construction, commissioning and decommissioning work associated with a declared dam has a quality management system in accordance with AS/NZS ISO 9001:2016.

A declared dam owner can ensure that an organisation has a suitable management system prescribed by AS/NZS ISO 9001 by:

- assessing the organisation's management system themselves
- contracting a consultant to conduct an independent assessment of their systems
- requiring that their systems are certified by an accredited management system certifying organisation (*note this is not a requirement of the regulation*).

Who can review a declared dam design?

For a declared dam in the 'extreme' or 'high' category, the design must be reviewed by a competent person who is independent of the original design process.

Safety management systems

Do the new requirements for dam safety management systems apply to all declared dams?

Yes. The requirements to establish, implement, and maintain a dam safety management system applies to all declared dam owners and dams.

However, the size and complexity of the safety management system can vary to match each declared dam's unique nature. For example, a large, complex dam with many inter-related systems will normally require a larger and more complex safety management system compared to a smaller, simpler dam.

Who can help prepare a dam safety management system?

There are a number of consultants available to help declared dam owners prepare and implement a dam safety management system and manual. Dams Safety NSW will publish a dam safety management system guideline and template to help dam owners.

How much does a dam safety management system cost?

The regulatory impact statement associated with the new legislation gives estimates of the typical costs associated with documenting and implementing a dam safety management system.

A dam safety management system should be tailored to suit the size and complexity of the dam and operation, so the development and implementation of a dam safety management system does not necessarily need to be complicated and expensive.

What is a 'management review' of the dam safety management system and how often are they needed?

A management review of the dam safety management system must be carried out once every 12 months to ensure the system's continuing suitability, adequacy and effectiveness.

A management review considers:

- the status of actions from previous management reviews
- changes in external and internal issues that are relevant to the asset management system
- information on the asset management performance, including trends in:
 - non-conformities and corrective actions
 - monitoring and measurement results
 - audit results
 - asset management activity
 - opportunities for continual improvement
 - changes in the profile of dam safety risks and opportunities.

The outputs of the management review include decisions relating to improvement opportunities for the dam safety management system.

Risk management

What is the meaning of ensuring safety 'so far as is reasonably practicable'?

The DSC guidelines specified that risks are made 'as low as is reasonably practicable' (ALARP). The new regulation mandates that dam owners must ensure safety 'so far as is reasonably practicable' (SFAIRP).

SFAIRP requires a dam owner to determine what the available practicable precautions are and then tests which of these are reasonable. There are two elements to this. A dam owner must consider:

- what can be done, i.e. what is possible in the circumstances for ensuring safety
- whether it is reasonable in the circumstances to do all that is possible, including an assessment of the safety benefits against the costs.

What is reasonably practicable is determined objectively. This means that a dam owner must meet the standard of behaviour expected of a reasonable person in the dam owner's position and who is required to comply with the same duty.

Dams Safety NSW will publish a guideline on the interpretation and application of the term 'so far as is reasonably practicable'.

In terms of risks, what is the difference between the terms ‘as low as is reasonably practicable’ and ‘so far as is reasonably practicable’?

The DSC guidance sheet specified that risks are made ‘as low as is reasonably practicable’ (ALARP). The new regulation mandates that dam owners must ensure safety ‘so far as is reasonably practicable’ (SFAIRP).

Both ALARP and SFAIRP have at their core the concept of actions that are ‘reasonably practicable’.

However, the processes required to demonstrate each approach is different, especially for high-consequence, low-likelihood events such as those faced in dam safety management:

- ALARP asks ‘what is the risk associated with a hazard?’ and then, ‘can that risk be made as low as reasonably practicable?’
- SFAIRP asks: ‘what are the available practicable precautions?’ and then tests which are reasonable, based on the common law balance (of the significance of the risk versus the effort required to reduce it).

What costs should be considered in eliminating or minimising risk? How does a cost-benefit analysis fit in?

A cost-benefit analysis is carried out as one of the steps in a ‘so far as is reasonably practicable’ (SFAIRP) approach to risk management.

Dams Safety NSW is aligning with the NSW Treasury guidelines on cost-benefit analysis, which includes guidance on whether to apply a factor (a disproportionality factor) to the benefits to favour safety over cost in the cost-benefit calculations.

Under the *Dams Safety Regulation 2019* and standards, a dam owner will not be required to apply a disproportionality factor, but may choose to if they consider that it is appropriate and prudent.

Dams Safety NSW will publish a guideline on the use of cost-benefit analysis when applying the SFAIRP approach.

Is an owner able to proceed with a safety improvement where costs exceed benefits?

A declared dam owner must decide what safety improvements to make, based on the SFAIRP principles and cost benefit analysis. The dam owner is, or course, able to proceed with a safety improvement where costs exceed benefits.

What is an acceptable level of dam safety risk?

A ‘safety threshold’ has been established for societal and individual risks. This safety threshold largely follows Australian National Committee on Large Dams (ANCOLD) risk guidelines and the original DSC guidance sheet DSC1B figures 1 and 2. It reflects risk levels that are lower than the average fatality rate in Australian society according to health, occupation, recreational pursuits and lifestyle habits.

If a declared dam is assessed as being above the safety threshold, this must be reported to Dams Safety NSW. Dams Safety NSW may direct the declared dam owner to take action to improve the risk rating of the dam to meet the safety threshold.

There is no level of risk that can be considered to be “acceptable”. If societal or individual risk is assessed as being below the safety threshold, then the dam owner must use the SFAIRP process and cost benefit analysis to make decisions on safety improvements.

Is a declared dam owner able to implement a safety improvement project providing greater safety than required by Dams Safety NSW?

The requirements specify that, if societal or individual risk is assessed as being above the safety threshold, then the dam owner must report this to Dams Safety NSW. Dams Safety NSW may direct the declared dam owner to take action to improve the risk rating of the dam to meet the safety threshold.

Dams Safety NSW requires declared dam owners to apply the SFAIRP process to make safety decisions if societal or individual risk is assessed as being below the safety threshold. A declared dam owner must decide what safety improvements to make, based on the SFAIRP principles and cost benefit analysis. The dam owner is, of course, able to proceed with a safety improvement where costs exceed benefits.

Operations and maintenance plans

Will there be a guideline on operations and maintenance plans?

Yes. Dams Safety NSW will publish a guideline on operations and maintenance plans.

If a declared dam doesn't change appreciably over time, does the owner still need to regularly update the operations and maintenance plan?

The declared dam owner needs to show that any changes to the declared dam or its operations, and their impact on the operations and maintenance plan, have been considered and reviewed at least once a year.

If there are no changes needed to the operations and maintenance plan, the fact that the review of the plan has been done must be recorded by the declared dam owner (for example in a plan amendment summary page).

Emergency plans

What is an emergency plan?

Emergency plans are prepared by the declared dam owner in consultation with key stakeholders under the *Dams Safety Act 2015*. The plans outline the emergency arrangements, provide information about impacts, and document the agreed notification process with emergency services.

What are dam failure alerts?

Dam failure alerts are a series of notifications given to emergency services to communicate an escalating/de-escalating emergency status of a declared dam. The white, amber and red alerts are determined when preparing an emergency plan and are specific to each declared dam.

Will there be a guideline available on how to set alert levels?

Yes. Dams Safety NSW will provide a guideline on how to set alert levels. The guideline will build on the DSC guidance sheet information.

Will there be a guideline on emergency exercises?

Yes. Dams Safety NSW will provide a guideline on the various stages/levels of emergency exercises that are required by the regulation.

What is the role of the NSW State Emergency Service in dam emergencies?

The NSW State Emergency Service (NSW SES) is responsible for managing the downstream consequences. The NSW SES prepares local flood plans that describe response measures

(property protection, warning, evacuation, rescue, resupply) for all types of flooding, including flooding from dam failure. Local flood plans are prepared under the authority of the *State Emergency Service Act 1989* and the *State Emergency Rescue Management Act 2001*, and are endorsed by their respective local/regional emergency management committee.

Will Dams Safety NSW meet regularly with the NSW State Emergency Service?

Yes. We expect that Dams Safety NSW will meet with the NSW SES to discuss the best ways to address dam emergencies and practical ways to improve dam safety emergency response across the state.

How often do I need to upgrade my emergency plan?

The plan should be kept up to date at all times. Dam owners are encouraged to update emergency plans as frequently as required. As a minimum you must:

- complete a full review and update at least once every five years
- review and update the list of contacts at least annually
- review and update the plan within one month:
 - of any change to emergency management arrangements
 - of a significant change, since the consequence category of the dam was last determined, to the number of persons who would be put at risk if there were to be a failure of the dam
 - update the plan when there is a change to the consequence category of the dam
 - update the plan as directed by Dams Safety NSW.

Are there penalties for not keeping my emergency plan(s) up to date?

Yes. Individuals and corporations can be fined for failing to prepare and implement declared dam safety emergency plans that comply with the requirements in the regulation.

What does it mean to exercise the plan?

An exercise is basically a test of the emergency plan.

An exercise is a controlled, objective-driven activity used for testing, practising or evaluating processes or capabilities.

Exercises are an essential component of emergency preparedness and should be used to enhance capability and contribute to continuous improvement. An exercise can be as simple as having a planning group discuss the emergency plan, or as complex as a major multi-agency event involving several organisations and participants.

The Australian Institute for Disaster Resilience provides a guide to managing exercises in Handbook 3 of its Australian Disaster Resilience Handbook Collection available from knowledge.aidr.org.au/resources/handbook-3-managing-exercises

Is there a relationship between emergency plans and local flood plans?

Yes. The two plans should complement each other.

Record keeping

Will Dams Safety NSW provide information about record keeping?

Yes. Dams Safety NSW will publish a guideline on ways to comply with the record-keeping requirements of the regulation.

Mining

Will mining notification areas change?

Yes. Dams Safety NSW will be responsible for managing requests for changes to notification areas.

What role will Dams Safety NSW have in mining approvals?

The DSC provided the conditions that were included in mining leases and which were required to be followed when mining in notification areas. Dams Safety NSW does not specify mining conditions.

However, the authority that provides the development consent for mining operations under the *Mining Act 1992* must refer any application for development within a notification area to Dams Safety NSW.

Dams Safety NSW will have 28 days to provide advice regarding the application. Before granting development consent, the consent authority must take into consideration any matters raised by Dams Safety NSW in relation to the application.