Frequently Asked Questions

DAMTEC
DAM SAFETY MANAGEMENT SYSTEM

Tonkin+Taylor

1. What is a Dam Safety Assurance Programme (DSAP)?

A Dam Safety Assurance Programme (DSAP) is a structured framework of plans and procedures for dam owners to plan and complete activities for the safe operation and management of their dams.

Dam owners with appropriate expertise may prepare the DSAP themselves, or alternatively, may arrange for a technical practitioner to prepare it.

A DSAP can be beneficial for managing the risk of any dam. However, under the Building Act 2004 and Building (Dam Safety) Regulations 2022, DSAPs must be certified by a Recognised Engineer and submitted to the regional authority for all Medium and High Potential Impact Classification (PIC) classifiable dams.

2. What is a Dam Safety Management System (DSMS)?

Alike a DSAP, a DSMS is a structured framework of plans and procedures for dam owners to plan and complete activities for the safe operation and management of their dams.

However, while a DSAP comprises minimum regulatory requirements set out in the Building Act 2004 and Building (Dam Safety) Regulations 2022, a DSMS comprises recommended practice as defined in Module 5 of NZSOLD's New Zealand Dam Safety Guidelines (free to download).

The following table, sourced from NZSOLD's Guidelines, summarises the elements included in a DSAP and the more extensive set of elements in a DSMS.

Element	Recommended practice DSMS	Regulatory minimum DSAP
Governance	✔	
People	✔	
Operation and management	✔	✔
Surveillance	✔	✔
Appurtenant structures and gate and valve systems	✔	✔
Intermediate dam safety reviews	✔	✔
Comprehensive dam safety reviews	✔	✔
Special inspections and dam safety reviews	✔	
Emergency preparedness	✔	✔
Identifying and managing dam safety issues	✔	✔
Information management	✔	
Audits and reviews	✔	

Damtec is a digital platform that is capable of supporting the elements of both a DSAP and DSMS.

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3. What legislation must I comply with as a dam owner?

Module 1 of NZSOLD's New Zealand Dam Safety Guidelines (free to download) summarises the legal obligations and liabilities of those associated with the development, ownership, and operation of dams under a broad suite of legislation, which includes the Building Act 2004 and Building (Dam Safety) Regulations 2022.

The Building Act 2004 establishes operational requirements for dams, and is intended to provide a nationally consistent, risk-based regulatory framework for dam safety. The Building (Dam Safety) Regulations 2022 contains definitions that enable implementation of the Act.

Under the Act and Regulations, owners of classifiable dams have legal responsibilities for ensuring their dams are managed appropriately, proportionate to the potential impacts they pose.

Insert an extra paragraph. "The Building Act 2004 also establishes the requirement for building consent when constructing or modifying "large" dams."

Refer to NZSOLD's Guidelines for requirements under other legislation.

4. Are my dams subject to the Building (Dam Safety) Regulations 2022? What is a classifiable dam?

Structures that meet the definition of a classifiable dam are subject to the Regulations.

To be a classifiable dam, a structure must meet the definition of a "dam" under the Building Act 2004, and also meet the size thresholds for a "classifiable" dam defined under the Building (Dam Safety) Regulations 2022.

The Act defines a "dam" as:

(a) an artificial barrier, and its appurtenant structures, that—

(i) is constructed to hold back water or other fluid under constant pressure so as to form a reservoir; and

(ii) is used for the storage, control, or diversion of water or other fluid.

(b) includes—

(iii) a flood control dam; and

(iv) a natural feature that has been significantly modified to function as a dam; and

(v) a canal; but

(c) does not include a stopbank designed to control floodwaters.

The Regulations define the size thresholds for a "classifiable" dam as having:

(a) a height of 4 m or more and holding 20,000 m^3 or more volume of water or other fluid.

For the purposes of the Regulations, the dam height is measured from the dam crest to the downstream toe, which is defined as the lowest outside limit of the dam fill. The stored volume is measured at the dam crest, but excludes volume stored below the level of the downstream toe.

5. When do the new Building (Dam Safety) Regulations 2022 come into effect? What activities will I need to complete and by when?

On 13 May 2024, the Regulations came into force. Owners of classifiable dams need to undertake the activities summarised in the following table, which have a range of due dates.

Activity	Low potential impact dams	Medium potential impact dams	High potential impact dams	Section of the Act or Regulations
Regulations are made	12 May 2022			
Regulations commence	13 May 2024			
Submit a PIC to regional authority	Up to three months after regulations commence or the dam is commissioned (whatever is later).			Section 135(2) of the Act.
Submit a dam safety assurance programme (DSAP) to regional authority.	Not required.	Up to two years after the regional authority approves the PIC.	Up to 12 months after the regional authority approves the PIC.	Section 142(2) of the Act.
Carry out an intermediate dam safety review (element four).	Not required.	Within 12 months of the regional authority approving the DSAP.	Within 12 months of the regional authority approving the DSAP.	Section 15 of the Regulations
Carry out a comprehensive dam safety review (element five).	Not required.	Within five years of the regional authority approving the DSAP.	Within five years of the regional authority approving the DSAP.	Section 16 of the Regulations.
Submit an annual compliance certificate.	Not required.	On the anniversary of the regional authority approving the DSAP.		Section 150 of the Act.
Review the dam's PIC.	Within five years of the regional authority approving the classification, and then not more than every five years.			Section 139(1) of the Act.
Review the DSAP.	Not required.	Within ten years after the date which the regional authority approves the DSAP, and then after the first review, at intervals of not more than seven years.	Within five years of the date which the regional authority approves the DSAP, and then after the first review, at intervals of not more than five years.	Sections 140 and 146 of the Act.

Source: MBIE (2023) Guide to complying with the Dam Safety Regulations.

6. How does the pricing structure work – are there different pricing tiers depending on the features needed?

Pricing includes a one-off setup fee & a monthly or yearly license fee. Fees will depend on the specific needs of your organisation and dams portfolio. Contact us to learn more.

7. Can Damtec integrate with existing systems and software that a company uses?

We can help connect existing hardware & devices with Damtec. If you have software that you would like to integrate with Damtec, we will happily discuss this with you.

8. What type of training or onboarding services does Damtec offer to new users?

Once we have worked with you to set up Damtec according to the unique requirements of your organisation and dams, we offer specific training to your staff so that they get the most out of Damtec.

Damtec comes with other features that provide support, including an online, user-friendly “how to” guide, and a Support button to request help from a real person.

9. What is the role of Cirro in Damtec’s functionality?

The surveillance element of Damtec is powered by Cirro, which is a real time site data and analytics solution developed by Geotechnics, New Zealand’s leading civil engineering testing company. Cirro is a powerful tool that can pull together data from a broad range of sources, including manually collected observations and readings, automated and telemetered devices, and accommodates a broad variety of data formats and reporting cadences.

10. Does Damtec offer customizable features to cater to specific needs of a dam or organization?

Damtec has been purpose-built by Tonkin + Taylor’s dam experts and digital specialists to satisfy the 12 elements of a Dam Safety Management System (DSMS) recommended by NZSOLD’s New Zealand Dam Safety Guidelines and the requirements of a Dam Safety Assurance Programme (DSAP) as outlined in the the Building (Dam Safety) Regulations 2022. Consequently, we are very confident that its features will capably meet the needs of New Zealand dam owners.

That said, we know that every dam owner organisation and dam is unique. Damtec has been developed to be adaptive to those unique characteristics where practical. Our onboarding process includes opportunities to tailor the Damtec setup to you and your dams, even within its starting configuration and features. We are also open to working with you to understand and agree customisations that would provide real value to you.

We are committed to ongoing, long-term investment in Damtec as a “living system”. The platform has been set up from the beginning to facilitate continuous improvement and growth over time, incorporating feedback from users, changes in legislation, and advances in dam engineering practice.

11. While the platform is developed in the New Zealand context, can it be beneficial for dam owners or users in other geographical areas?

Damtec has been purpose-built to align with New Zealand legislation and recommended practice, including the Building (Dam Safety) Regulations 2022 and NZSOLD's New Zealand Dam Safety Guidelines. Many aspects align with international legislation and practice in principle but vary in detail depending on your specific state or country.

As noted in response to other questions, Damtec has been developed to be adaptive to the unique characteristics of each dam owner organisation and its dams where practical. Our onboarding process anticipates working with you to understand and agree any customisations that would be worthwhile for your situation. This includes discussing the suitability of Damtec, and customisations if required, for your specific geographical area. Tonkin + Taylor's dam experts are also on hand if needed to provide professional advice on dam safety requirements in your location.

12. Who is this product for? What constitutes a "dam owner"?

MBIE's "Guide to complying with the Dam Safety Regulations" defines a dam owner for the purposes of the Building Act 2004 and Building (Dam Safety) Regulations 2022, as "the person who legally owns the physical dam itself". The Building Act 2004 states that it is the "owner of the dam" that must classify the dam, provide the regional authority with the classification and certificate, the DSAP, and the annual compliance certificate. Further detail is provided in MBIE's document. However, we note that legal ownership is a complex and emerging issue for dams and recommend seeking legal advice if you are unsure if you are the legal owner of a dam.

Damtec is a digital platform that supports you with all the elements of a DSAP and DSMS. While a DSAP is only legally required for Medium and High PIC Classifiable dams, a DSAP or DSMS can be a valuable tool for managing the risk of dams of all sizes and PICs. We note that DSMS activities and rigour are tailored to be proportionate to the risk of the specific dam i.e., low PIC and smaller dams will usually have less onerous requirements and simpler processes.

Ultimately, the aim of Damtec is to help you more effectively and efficiently manage dam safety risks:

- To avoid harm to people, property and the environment downstream,
- To maintain the value of your dams as valuable assets, and
- To look after the reputation and bottom lines of your organisation as a dam owner.

13. What is the onboarding process like? How long will it take?

Getting Damtec up and running for you and your organisation will vary depending on your needs and current systems. The onboarding process will involve understanding those needs and gathering or setting up the means to acquire information and data related to your dams, for input into Damtec.