Case Study - Upper Lachlan Shire Council

Managing dam safety

Customers expect their council to safely manage water supplies for the community. When the safety of a dam that holds a town's water is compromised, council needs to consider whether to drain and repair the dam which could leave the town with limited drinking water or to run the risk of the dam bursting and flooding the nearby homes.

This case study describes how Upper Lachlan Shire Council managed a potential dam bursting and secured Taralga's water supply.

This case study is a resource for regional and county council decision-makers, including Councillors and operations staff of council-owned local water utilities.

About Upper Lachlan Shire Council

- Upper Lachlan Shire Council is responsible for the towns of Bigga, Binda, Collector, Crookwell, Dalton, Grabben Cullen, Gunning, Laggan, Taralga and Tuena in the Southern Tablelands between Sydney and Canberra.
- The local government area is home to around 8,100 residents across 7,127 square kilometres.
- After council amalgamations in 2004, Council took over the water utility operations for Taralga.
- Council manages around $455 million in community assets, inncluding three drinking water supply systems.

Figure 1. Map showing the location of Upper Lachlan Shire Council local government area in the southern tablelands of NSW

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System context

Upper Lachlan Shire Council owns and manages 3 drinking water supply systems:

- Crookwell is the largest and supplies around 1,500 connections
- Gunning and Dalton supply around 700 connections
- Taralga supplies around 300 connections.

Each of these systems have their own dam and water treatment.

Council is responsible for planning and managing these assets to meet statutory obligations and to provide a high standard of community service. Council's responsibilities for these systems include the supply of water quantities, including water for sporting fields and drinking quality water for their customers.

Taralga Dam has a capacity of 27 megalitres (ML). From the dam, water is pumped to a 0.3 ML/day treatment plant where it is filtered before being supplied to the town of Taralga. The Taralga water supply system is shown in Figure 2.

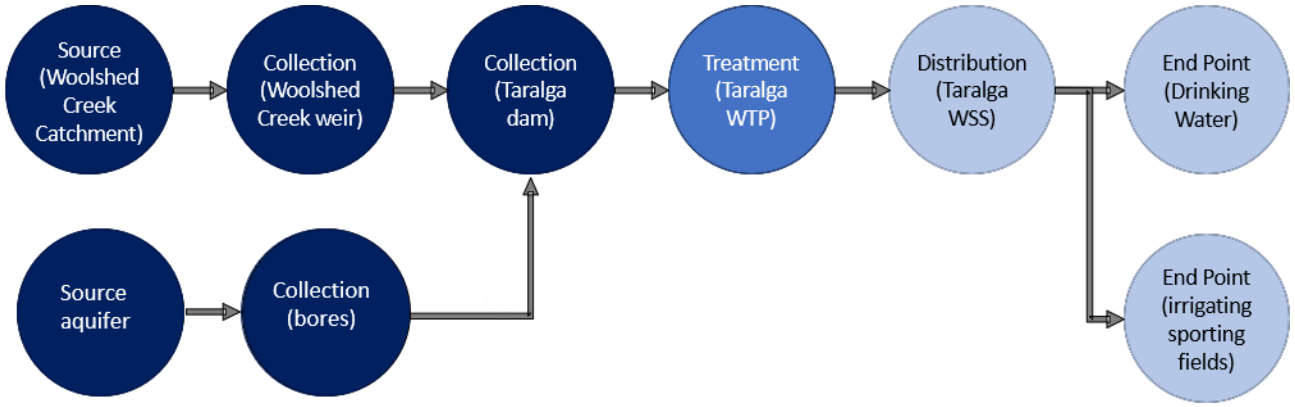

Figure 2 Taralga water supply system showing the sources of water that feed the dam, the treatment plant and the distribution to customers and sporting fields

The event

In October 2020, Council engaged a specialist dam engineer to assess the condition of Taralga Dam as Council was concerned that the dam was potentially leaking.

The assessment identified that the dam wall had been eroding for several years and although a dam failure was not imminent, if there were to be a future event that resulted in a sudden, high volume of rain then there was a risk of flooding homes below the dam.

In the 20 hours after the assessment report was issued to Council, Council representatives worked together with State Emergency Services, Rural Fire Service and Fire and Rescue NSW to:

- develop an emergency evacuation plan to enact in the case of the dam bursting
- setup an emergency operation centre at Council chambers with representatives from various emergency services to assit with the the plan

- decide that the dam level should be reduced to 30% capacity to minimise the chance of the dam bursting and to reduce the impact if it should occur. Draining the dam meant an alternative water source was required and residents would need to reduce their water consumption to ensure the town did not run out of water. Council intended to access their bore water source to supplement Taralga's water supply.
- call a community meeting to advise residents of the situation which was promoted via radio, newspaper, on Council's website, social media, via direct phone calls to householdsand via door-knocking by State Emergency Service (SES). Reactions from the community were varied, some were angry, and others were understanding.
- Level 1 water restrictions were implemented a few days later.

A dam construction/repair plan is being developed in conjunction with Dam Safety NSW and options include either relocating the dam or repairing the existing dam.

Council governance

Upper Lachlan Shire Council is a council under the *Local Government Act 1993* (NSW) and is subject to a range of obligations under that Act, including supplying drinking water to the towns of Crookwell, Taralga, Gunning and Dalton.

As an owner of a declared dam, Council is required to meet the *Dams Safety Act 2015* (NSW) and Dams Safety Regulation 2019 (NSW) requirements, including the implementation of an operations and maintenance plan and an emergency management plan.

To comply with these Acts, Council must supply and maintain fit for purpose system assets, from the water source to the customer.

Under the *Public Health Act 2010* (NSW) and the Public Health Regulation 2012 (NSW), Council must:

- meet the requirements of the Public Health Act and levels of service agreed with the community
- carry out and uphold a quality assurance program, often known as a Drinking Water Management System or DWMS
- manage a DWMS that is consistent with the Framework for Management of Drinking Water Quality in the Australian Drinking Water Guidelines (ADWG)).

Overview of risks

Upper Lachlan Shire Council was exposed to several risks from the event, some of which are summarised in Table 2.

Risk	Consequence to Council	Impacts
Catastrophic dam failure	• Injury to residents and staff or loss of life by flooding. • Financial compensation to nearby property owners for damage to properties. • Cost to repair or replace dam wall.	• Public health • Work health and safety • Financial • Compliance • Reputation
Reduced water security due to reduced water levels in the dam	• Need to rely on alternative water sources for the community to continue to provide essential service. • Increased operational needs, including increased, unplanned costs. • Reduced community trust in council.	• Public health • Financial • Compliance • Reputation
Operational disruption to rectify the dam	• Unanticipated repair costs. • Resourcing constraints for staff/contractors to repair the dam. • Potential non-conformance of other system obligations and levels of service.	• Financial • Public health • Compliance • Reputation
Increased customer complaints and enquiries to Council across multiple channels	• Reputational impacts for council, councillors and executive staff. • Reduced community and business confidence in council.	• Reputation • Political • Wellbeing • Financial
Lack of preparation for a complex emergency incident	• Reduced community and business trust in Council's capacity to respond to emergencies.	• Reputation • Political • Work health and safety

Table 1 Overview of risks Council were exposed to from the dam safety event

Insights gained

Some of the key insights learned from this dam safety event include:

Risk analysis and reporting

- The importance of risk analysis, hazard identification and risk mitigation as part of Council's water management obligations.
- The need to have systems, processes and resources in place to ensure appropriate inspection, recording and reporting are carried out.
- The need for proper root cause analysis and counter measures.

Incident management

- The need for scheduled review and testing of emergency incident plans.

Staff capability

- The importance of appropriately qualified and/or trained staff.
- The need to report and act on potential incidents early and appropriately.

Considerations

- If your Council owns a dam, are you confident it is well managed for dam safety?
- Do you know what your responsibilities are in the event of an emergency?
- Do you know where Council can source additional water in the case of an emergency?
- Do you know what funds Council has available for emergency situations?

References

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