

Dam Improvement Program

Lake Macdonald Dam Safety Upgrade

December 2018



Dams are long-life assets and require continual assessment, monitoring and maintenance. At Seqwater, some of the dams we operate were built decades ago, and just like cars, they need regular maintenance to keep them in good working order and meet changing safety standards.

Lake Macdonald Dam (Six Mile Creek Dam) is one of a number of dams identified for upgrade as part of our Dam Improvement Program. This will be the first major upgrade for the dam since it was built in 1965 and raised in 1980.

Dam safety

In Queensland, dam owners are responsible for the safety of their dams under the *Water Supply (Safety and Reliability) Act 2008* (the Act). The Department of Natural Resources, Mines and Energy requires Seqwater to comply with the Queensland Dam Safety Management Guidelines under the Act. Like all dam operators across the country, we also seek to meet the national guidelines set by the Australian National Committee on Large Dams (ANCOLD).

Most of the dams in South East Queensland were originally built in the 1960s and 1970s (some even earlier). Since then, there have been significant changes including:

- population growth downstream
- advances in dam design
- new ways of estimating extreme rainfall and flood events
- improved understanding of earthquake probabilities and loads.

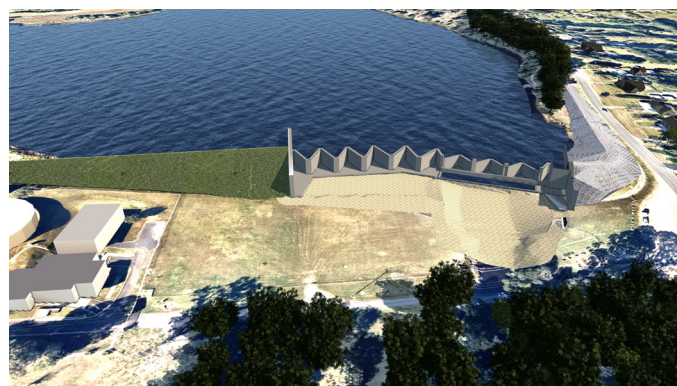
In 2012-13 we commissioned an independent review which found improvements are needed at a number of our 26 regulated dams, including Lake Macdonald, to meet the dam safety guidelines and bring them in line with the latest engineering standards.

About the upgrade

More than 100 options were assessed and upgrading the existing dam is the most cost-effective solution to improving dam safety, while also maintaining water supply and flood mitigation benefits, and keeping the lake open to recreation in the future.

Work will involve:

- constructing concrete foundations for the new spillway
- building a new 'labyrinth' spillway
- reconstructing the existing earth embankments (dam walls).



Concept design of the labyrinth spillway to be constructed at Lake Macdonald.

Labyrinth spillways are made out of concrete and look a bit like a saw tooth blade. Due to area constraints at the existing dam site, the unique spillway design was selected to efficiently control water flowing out of the dam.

The new spillway will work in a similar way to the existing spillway. When water reaches the dam's full supply level, it will spill over the concrete 'saw teeth' and into Six Mile Creek downstream.

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Timing

The final design of the upgrade is expected to be completed in 2019, with construction now scheduled to begin early-2020, subject to approvals.

The water level in the lake will be temporarily lowered a few months before work begins for the safety of those working on the dam and living downstream.

Before the upgrade begins, a temporary coffer dam will be built to hold the remaining water back during construction and preparations made for a concrete batching plant on site.

Once construction is complete, the dam's drinking water storage level (or full supply level) will be reinstated.



Living near our dams

Lake Macdonald Dam is located in an urban area, so it's important neighbours and people downstream know what to do in the unlikely event of an emergency. The dam has an Emergency Action Plan in place to enable us to respond quickly to potential incidents in partnership with emergency services and local council and, through targeted intervention, prevent an incident from developing into an emergency. The plan also means appropriate and effective warnings can be given, if needed.

Emergency services have a range of ways to warn the community about severe weather and other emergencies that require preparation and action at the household level. For help with preparing an emergency kit and evacuation plan, visit getready.qld.gov.au

Keeping you informed

The best way to stay up to date with the progress of the Lake Macdonald Dam Safety Upgrade is via our e-updates. To subscribe, or for more information:

- w** yourseqwater.com.au/lake-macdonald-dam-upgrade
- e** lakemacdonald@seqwater.com.au
- s** subscribe at seqwater.com.au/subscribe-our-e-updates
- p** 1800 902 294

2012-14	✓
DAM SAFETY REVIEW	
2014-15	✓
OPTION ANALYSIS & CONCEPT DESIGN	
2016	✓
PRELIMINARY DESIGN & APPROVALS	
2017-19	←
DETAILED DESIGN & APPROVALS	
2019-20	🔍
PROJECT PLANNING	
2020-22	🔍
CONSTRUCTION	