FACT SHEET

Leslie Harrison Dam

Leslie Harrison Dam, located on Tingalpa Creek, was built in 1968 to supply drinking water to Redland City. It currently supplies around 20% of Redland City's drinking water and connects to the SEQ Water Grid via the Eastern Pipeline Interconnector.

Originally designed as an un-gated earthfill embankment dam, it was modified in 1984 with the addition of four spillway gates to increase drinking water storage for the growing Redlands community. However, the dam wall itself wasn't raised, and this reduced the space available to hold back floodwater during heavy rain.

Why the gates were removed

The gates were removed to improve dam safety, and make it safer for the increasing community living downstream.

Methodologies and data used to estimate extreme rainfall events have significantly improved and industry engineering standards and risks have progressed since the dam was originally built. As an ageing asset with an increasing population living downstream, a safety review in 2013 showed the dam had a high risk profile.

To reduce this risk, the water level was permanently lowered in 2014 and the spillway gates were removed.

The gates were originally installed to increase drinking water supply, and by 2008 the Redlands gained access to new water sources— the North Stradbroke Island aquifers and the SEQ Water Grid—which meant the dam didn't need to store as much water for supply.

Where we are now

Today, Leslie Harrison Dam continues to operate as an un-gated dam, supplying 20% of Redland City's drinking water and 2.5% of the SEQ Water Grid. It remains a vital part of the region's water future.

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Flooding – with and without gates

Every dam has a unique balance between water supply and flood management, and how released water flows into the downstream catchment. Gated dams can hold more water and release it faster when inflows begin. They also give more control over when water is released. Ungated dams let water flow out naturally over the spillway. The more water comes in, the more it flows out.

With gates

When gates were added at Leslie Harrison Dam, there wasn't enough space above the full supply level to hold extra water. So when inflows started, the dam had to release water more quickly. This meant that when the dam filled, the gates were opened to release water at a faster rate downstream. While this typically would be a shorter release, the force and volume of water meant high levels of flooding downstream.

Without gates

Removing the gates creates more space to temporarily store floodwater and allows the lake to sit at a lower level, at or below the concrete spillway crest before rain begins. Doing so allows the dam safety risks to be reduced. This also means that while water typically spills for longer, it also spills more gradually, slowing its flow and impact downstream. As a result, any potential flooding is generally shallower and slower, giving communities more warning time to prepare and reduce the area affected.

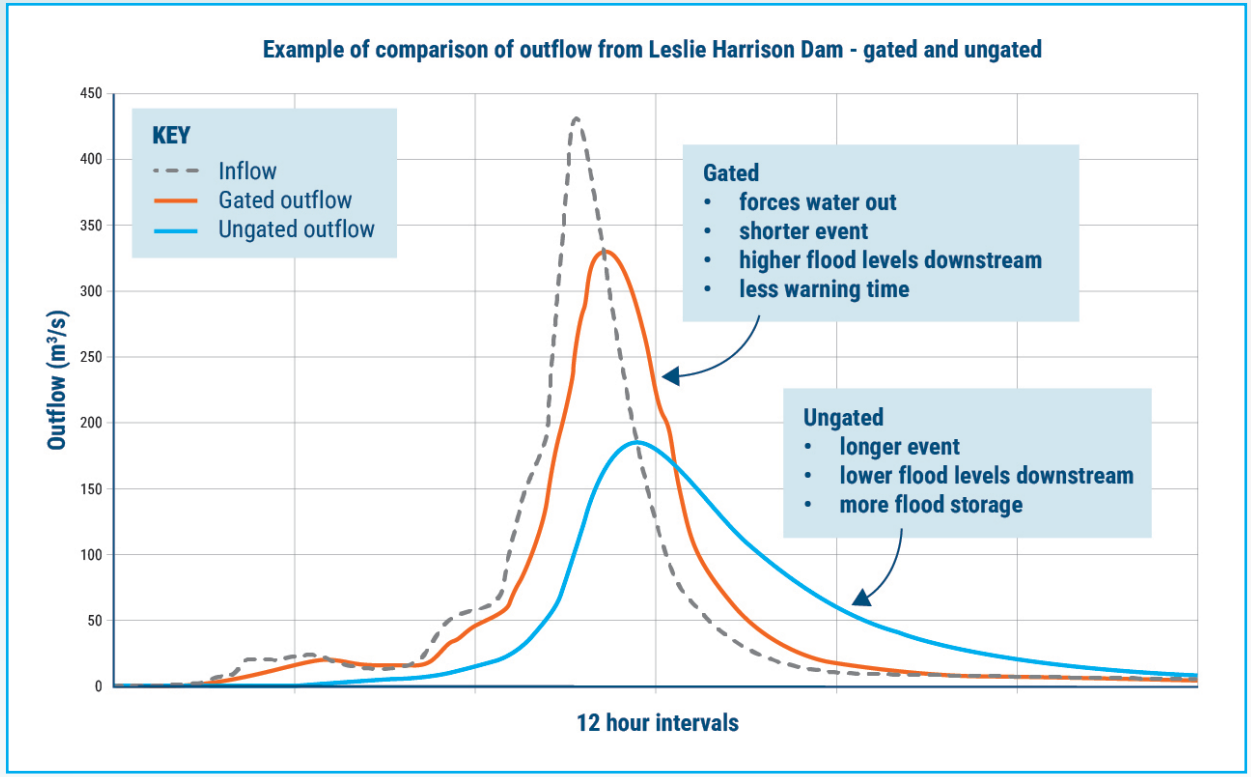
The graph below is an example of how the water flows at the dam during a heavy rain event, with and without gates.

This greater difference in outflow is why water levels increase in the downstream channels.

If a lot of water is trying to fit through the downstream channels at once, this will raise water levels.

A slower and prolonged flow rate is more easily accommodated downstream.

This lowers the water levels and speed and increases warning time, making it safer for everyone.



FOR MORE INFORMATION:

seqwater.com.au/dams/leslie-harrison

communications@seqwater.com.au

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