

Dam wall

What would happen if the dams failed

As part of a major project development, all contingencies need to be taken into account, including catastrophic failure of dams.

Extensive modeling has been done to document the effects of a dam failure in either reservoir. A "sunny day scenario" is used to calculate the level of flooding as that is when effects would be most pronounced.

In the case of the Oven Mountain Project reservoirs, the level of flash flooding would be very minimal and would not extend beyond the current river bed as it moves downstream.

In the case of an Upper Reservoir dam wall failure, the water would flow into the natural catchment of the Lower Reservoir.

In a 'Closed Loop' pumped hydro system, both reservoirs would never be full at the same time. The Lower Reservoir has capacity to hold the full volume of water stored in the Upper Reservoir, without overflowing.

A failure of the Lower Reservoir would result in water flowing into the Macleay River. The volume of water in the Lower Reservoir is not enough to overflow the natural banks of the Macleay River after a dam break event. Natural floods (for example, a 10-year return period flood) result in significantly more flow in the Macleay River than a dam break. Natural floods are sustained for the duration of the rain event, which may be a number of days.

A dam break event sends a pulse of water into the river. The increased flow, velocity (flow speed) and depth would be attenuated rapidly as the water travels downstream.



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Unlike a heavy rain event, the reservoirs hold a finite volume of water able to be released into the Macleay River. The Lower Reservoir stores 6.5 gigalitres of water at full capacity. This would take around 10 hours to reach Bellbrook in the event of a catastrophic dam break.



If a dam break occurred, the body of water would surge into the Macleay River just below the Lower Reservoir. There would be brief reverse flow traveling upstream past Kunderang East Homestead, but would not over flow the natural river banks.

The volume of water would then flow downstream as a surge wave, with decreasing velocity and depth until it completely dissipates. The Macleay River bed is wide, with normal river flows contained in a narrow river channel. Based on the "sunny day" scenario modeling, the water released from the Lower Reservoir would spread out over the gravel flood plains but remain within the river banks.

If the dam break occurred during heavy natural flooding in the Macleay River, the dam break surge would be much less noticeable.



The following figures show the maximum impact of the dam break water surge and the length of time the water would take to reach George's Junction, Green Point and Bellbrook.

The dam break water surge water level remains well below an average 10 year flood event.



To find out more about the **Oven Mountain Pumped Hydro Energy Storage Project**, or to sign up for our mailing list visit: **www.ompshydro.com**

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