

## Paradise Dam Essential Works

### Questions and Answers

#### **Q: Is Paradise Dam safe?**

A: Under normal and current forecast weather conditions, and under smaller flood flows similar to those seen in Cyclones Marcia and Debbie, Paradise Dam is safe. However, in the unlikely event of another significant flood such as the one in 200-year (1:200) event which the community experienced in 2013, the dam may fail.

It is important to note that the recently updated Emergency Action Plan in place for Paradise Dam would see downstream communities evacuated during a flood should a 1:50 year event be predicted.

#### **Q: What is being done to keep the community safe?**

A: There are two major aspects to this: emergency management and physical works at Paradise Dam.

#### Emergency management

Sunwater has worked with Bundaberg Regional Council, North Burnett Regional Council, the Police service and other agencies involved in the Local Disaster Management Group (LDMG) to update the Emergency Action Plan for Paradise Dam. Sunwater will continue to work with local government given the leadership role the LDMG play in managing local flood risks and emergencies.

Additionally, the Inspector General of Emergency Management has been tasked with undertaking a Paradise Dam Preparedness Review with a report anticipated before Christmas 2019.

#### Physical works

Sunwater proactively reduced the dam's capacity to 42 per cent to facilitate essential work to commence lowering the dam wall in 2020. Lowering the dam wall is the most effective way to improve the stability of Paradise Dam during significant flood events. Sunwater will be seeking to commence these works as soon as the 2019/20 wet season is over, which is currently forecast for March 2020.

#### **Q: How and when did Sunwater identify a problem with the dam?**

A: The damage sustained to Paradise Dam during the flood of record in 2013 was significantly more than expected given the dam was designed to pass much larger floods. From that point Sunwater has been conscientiously working through a series of studies and undertaking physical investigations.

Sunwater commenced the Paradise Dam Improvement Project in 2015 over several phases; and in planning for further longer-term works, a Technical Review Panel (TRP) comprising national and international experts was convened. Geotechnical work undertaken in 2019 clarified an issue with the bonds in the layers of RCC resulting in a revised stability assessment in August 2019. The TRP reviewed the previous work and confirmed the revised stability assessment with a report to Sunwater in September 2019.

**Q: What's actually wrong with the dam?**

A: The key concern to Paradise Dam's stability is the strength of bonds between each layer of the roller compacted concrete (RCC) that forms the wall. This is in addition to other issues identified with the dam to date such as downstream scour and foundation risks, would mean that under enormous pressure, an example being an event like the 2013 flood event, the dam wall could shear, or effectively come apart.

**Q: What is Sunwater doing to fix Paradise Dam?**

A: Since 2013, Sunwater has spent in excess of \$65M undertaking flood repairs and progressing the Paradise Dam Improvement Project. When the key issue with the bonds between the RCC layers was confirmed in September 2019, Sunwater's primary focus has been to plan for work that would effectively reduce the risk of dam failure as quickly as possible. It was determined the earliest that work could commence on site would be after the 2019/20 wet season, and that this work should initially target a 5m lowering of the dam wall. Lowering the dam wall is the most effective way to improve the stability of the dam during significant flood events.

For a 5m lowering to be achieved, the storage level of Paradise Dam was proactively reduced ahead of the 2019/20 wet season to allow space between the water and the works. This is both a practical and workplace safety imperative. Reducing the volume stored in the dam also reduces pressure on the dam wall and allows for better community safety management. Sunwater achieved this reduction over September to November 2019 by releasing its own allocation of unsold water, which was made available to customers and the public at no charge.

**Q: Is a reduction by 5m the complete solution?**

A: No, while the 5m dam wall reduction will go some way to reducing the risk of failure, at a minimum major strengthening works will be required to ensure the dam's long-term stability.

As Sunwater advances its plans to implement the dam lowering, Building Queensland has been tasked with undertaking an accelerated assessment to inform the Government on future options. This is expected in early 2020.

**Q: Will a dam failure impact the amount of water and the severity of the flooding that occurs?**

A: Paradise Dam is not a flood mitigating dam so does not play a role in reducing flood events downstream. Should another flood of record occur many parts of Bundaberg and other downstream communities would already be evacuated.

In the unlikely event that the dam failed as well, hydrological mapping shows that there is the potential for areas that did not flood in 2013 to be impacted. Maps that show the potential impact are publicly available in the Emergency Action Plan.

Updating the EAP with the LDMG means that regionally, the disaster response teams are across the impacts of any scenario and while an event of this nature is unlikely, are prepared to respond and keep the community safe.

end