

Friends of BNCR technical Group Meeting with Melbourne Water (MW) on 5 September 2018

MW agreed to meet with the Friends of the BNCR technical group to explain the technical risks associated with the Beaconsfield Reservoir. The attendees at this meeting were: BNCR Friends – Paul Higgott, Eric Dodge, Dr Fedir Woskoboenko, David Harrington and Dr Jurgen Schaffer; MW – Kristen Sih and Georgina Downey; GHD – Samuel Taubert and Paul A. Maisano and; Cardinia Environment Coalition – Geoff Lockwood

A summary of the meeting discussions is presented below.

MW personnel have read the report and provided a few minor comments.

MW is responsible for the management of the Beaconsfield Reservoir and reports into the Department of Environment, Land, Water and Planning (DELWP). MW manages dams under the ANCOLD guidelines. Ultimately, the Beaconsfield Reservoir is a State Government asset.

MW was well prepared and presented an extensive power point presentation on the Beaconsfield Reservoir with a focus on the technical issues as requested.

The main points presented by MW were as follows:

- MW is primarily focussed on the assets providing water to the community. The Beaconsfield Reservoir is no longer required for water supply but is an asset that has to be monitored for safety by MW.
- MW uses the As Low As Reasonably Practicable (ALARP) principle to determine societal risk at dams. ALARP sets requirements for risk assessment and regular inspection regimes for all dams.
- MW noted that in recent times the dam risk assessment methodology in Australia has required the adoption of a much more conservative approach. As such the Beaconsfield Reservoir may have met safety standards in the past, but this is no longer the case under the more recent guidelines.
- MW provided information on the failure modes that contribute to the risk at Beaconsfield Dam. 90% of the risk is associated with the following potential failure mechanisms:
 - Embankment Stability under normal operating conditions and seismic loading and,
 - Embankment piping risk under flood loading conditions.
 - 7 other lesser failure modes contributed to the overall risk factor.
- MW emphasised that flood failure risk was not a dominant failure mode driving the proposed works. This is consistent with the hydrological modelling that was carried out by the BNCR technical Group.
- MW described how hydraulic models are used to simulate dam failure events for each failure mode, which then produce inundation extents that show flood severity (Depth x Velocity).
- MW described how the hydrology is assessed for dam risk assessments, with rainfalls extending out to 1 in 10,000,000 annual exceedance probability. The BNCR technical group based their hydrological model on rainfall statistics over the last 200 years.

The BNCR technical group would like to see MW conduct more comprehensive risk reviews for the region with and without the presence of the Reservoir wall. As it stands the Reservoir provides the region with flood mitigation and this would be lost if the wall was largely removed. Moreover, the relative flood risk to the community in the case of catastrophic rainfall events have not been determined for both the current dam configuration and for the no dam wall case. The Officer plains have always been a flood-prone area due to the hills north of the Prices Highway stretching from Beaconsfield through to Pakenham.

MW also stated that part of their Charter is to work for the public benefit where possible.

MW confirmed that the piezometer data from the dam wall for the last 20-30 years was generally consistent and that there was no discernible immediate risk.

MW noted that there has been some minor seepage from the dam wall, but there was no indication of any immediate problems.

There was significant discussion on possible options to reduce risks to an acceptable level without having to resort to a major demolition of the dam wall and the retention of only a token amount of water in a series of ponds/pools. The BNCR group, being fact-finding only, could not speak on behalf of the whole community but gave a strong message that the largest continuous body of water would be the community preferred result. The BNCR group also unanimously voiced the opinion that most of the community were not supportive of the chain of ponds/pools model previously proposed by MW. Some of the suggestions raised by the BNCR group to enable the retention of a more sizeable body of water included the following:

- Increasing the size (width) of the spillway
- A more modest reduction in water level in the dam
- Repairing the erosion damage at the spillway
- Introducing remote sensing technology for piezometer monitoring to reduce the frequency and cost of visual inspection of the dam wall (currently inspected 3 times a week).
- Some additional buttressing of the existing wall.
- Other ideas that GHD and MW could identify as experts in the field.

Melbourne water agreed that it would review the scope of work to be carried out by GHD to include options in which a more significant body of water could be retained to maximise the amenity and historical value of the reservoir.

MW will conduct a multi-criteria analysis (MCA) so that each option can be assessed against objective criteria.

MW has arranged for GHD to develop the options and undertake the MCA in the coming months.

MW re-iterated that they are committed to ensuring the community understand the importance of the works, and how the preferred upgrade option has been chosen. Having said this, MW does not intend to hold a “town-hall” style session to talk about the options, as these events tend to be dominated by a few voices. Instead, MW intends to hold a series of sessions with small groups to ensure that we can talk to individuals and understand the concerns of the wider community.

MW has committed to prepare another community update and send this out widely. In this, MW will include some information on the storage area and depth profile, as requested by the technical group. MW will also let the community know about the work GHD is currently doing on developing options and undertaking an MCA.

The BNCR technical group will continue to liaise with Melbourne Water on this project in an effort to reach the best value solution to the community as opposed to the least cost option to MW.

The Friends of the BNCR wish to receive feedback on any issues associated with the reservoir re-development. However, the group encourages all groups and individuals to voice their opinions to Melbourne water, the Cardinia Council and politicians from all parties. The technical issues are just one aspect of the future of the Beaconsfield reservoir. Any technical issue can be resolved if there is sufficient support for a project.