

Date	10 February 2026
To	Jon Bright, Project Director – Waitaha Hydro Scheme Westpower Ltd
From	Martin Doyle
Project advice provided for	<i>Waitaha Hydro Scheme</i>
Qualifications and Code of Conduct	<i>Appendix 18 Hydrology Report</i>
Documents referred to	<i>Waitaha Hydro Scheme Substantive Application Appendix 18 Hydrology Report</i>
Signature	

1. I have reviewed the peer review reports of Mr Morgan and Dr Tunnicliffe.
2. I have visited the Kiwi Flat location regularly between 2005 and 2016, again in 2022, and variously monitored water level, flow, temperature and turbidity from 2006 to 2016. I took a keen interest in the nature of flood flows and river bed conditions over this time, this being critical to establishing the relationship between water level and flow (a rating curve).
3. I undertook detailed hydrological analyses of data from the wider catchment in 2013 and again in 2024.¹ Relying on that detailed analysis, my own regular visits and photographs from others, I can confirm there have been no changes in the key hydrological characteristics of the area since 2006. I remain confident in the accuracy of the data and the conclusions in my report (Appendix 18: Hydrology Report). In response to the Panel's Request for Information #2, I also confirmed my confidence in the accuracy of the synthetic flow data.²
4. To assist Westpower's expert advisor team in responding to the peer review reports, I contributed water level and flow data, my field observations, as well as time-lapsed flood photographs. I took a close interest in the photos (contained in the statement of Dr Murray Hicks dated 10 February 2026) as in my opinion they clearly show the impact of the choke effect at Morgan Gorge, this being of high relevance to my work as a hydrologist.

¹ [Appendix-18-hydrology-report.pdf](#), Investigations section 3.

² [Memorandum-responding-to-request-for-information.pdf](#), question 11.

5. The frequency and magnitude of floods is a key characteristic of this locality. The data and photos I have gathered over my history with the site demonstrate the unusually high ponding effect that occurs across the bottom third of Kiwi Flat, creating slow velocities while also 'drowning out' the intake location. I note that:
- (a) small floods can pass through Morgan Gorge with ease;
 - (b) at a flow of approximately 150 cumecs, the constriction of the Gorge creates a choke, and water quickly begins to pond up above this point, until the additional head of the water is able to overcome the increased friction of the gorge walls;
 - (c) the choke develops quite quickly, seen in the photos as a relatively sudden rise in water level, this tempered only by the need to fill the storage (ponding) of lower Kiwi Flat. Some rises 'post choke' can be many metres in 30 minutes or so;
 - (d) on recession, it takes extra time for the ponded water to drain; and
 - (e) the duration of the ponding varies according to the magnitude and duration of the flood – visual examination shows smaller floods create a pond with slow velocities lasting several hours, the majority last 6 to 18 hours, while sometimes the choke remains in effect for several days.
6. Over the 17-year span of my visits there has been no change to the cause of the choke, this being a function of solid bedrock river walls. I have noticed a natural flux in the deposition pattern of sediment and the channel location on Kiwi Flat.
7. I agree with Dr Hick's summary of the photos I supplied from flooding in December 2013. I also agree with the selection of the flood (16 April 2009) he uses to illustrate a 'typical flood', while noting that defining a typical flood is a difficult concept.
8. I have also provided 2 years of river temperature data to Ms McMurtrie for her ecological response. In my opinion this record remains relevant today, there being no strong drivers for meaningful change in this parameter.

Martin Doyle