discussion paper

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Certified to best practice standards
ISO 9001 / 14001 and AS/NZS 4801

Lake Fyans
Operating Rules

Lake Fyans is a relatively small off-stream reservoir with a small natural catchment. Its main function is to supply water to Ararat, Stawell and Great Western and some Supply-by-Agreement customers.

The principle operating objective for Lake Fyans is to keep it as full as practicable throughout the year, up to a maximum level of 203.80 m AHD (18,460 ML). This level is 0.50 metres below the historic full supply level (FSL) of 204.30 metres (21,060 ML). The lower operating level is due to the condition of the embankment and provides additional freeboard as the lake has no spillway.

Water can be harvested into Lake Fyans from Fyans Creek at a rate of up to 200 ML/day. Stoney Creek, which runs through Halls Gap, is a major tributary on this system. During periods of high flows in Fyans Creek the inlet channel is closed to minimise the impact of uncontrolled inflows from localised runoff and flooding that can exceed the channel capacity. The inlet channel is re-opened as soon as it is safe to do so.

Water can be transferred into Lake Fyans from Lake Bellfield, if required, to support customers dependent on the Lake.

The outlet channel from Lake Fyans has a capacity of 120 ML/day. Once levels within Lake Fyans reach the maximum operating level, releases are made and water is directed either into Lake Lonsdale or into the lower Mt William Creek. Water may also be routed through Lake Fyans, to assist in maintaining water quality. Under this arrangement inflows and outflows are balanced to ensure that the maximum operating level is not exceeded. Figure 1 presents the general layout of Lake Fyans in relation to nearby reservoirs.

As Lake Fyans also supports many recreational pursuits and businesses, GWMWater maintains the level as close as practicable to the maximum operating level.

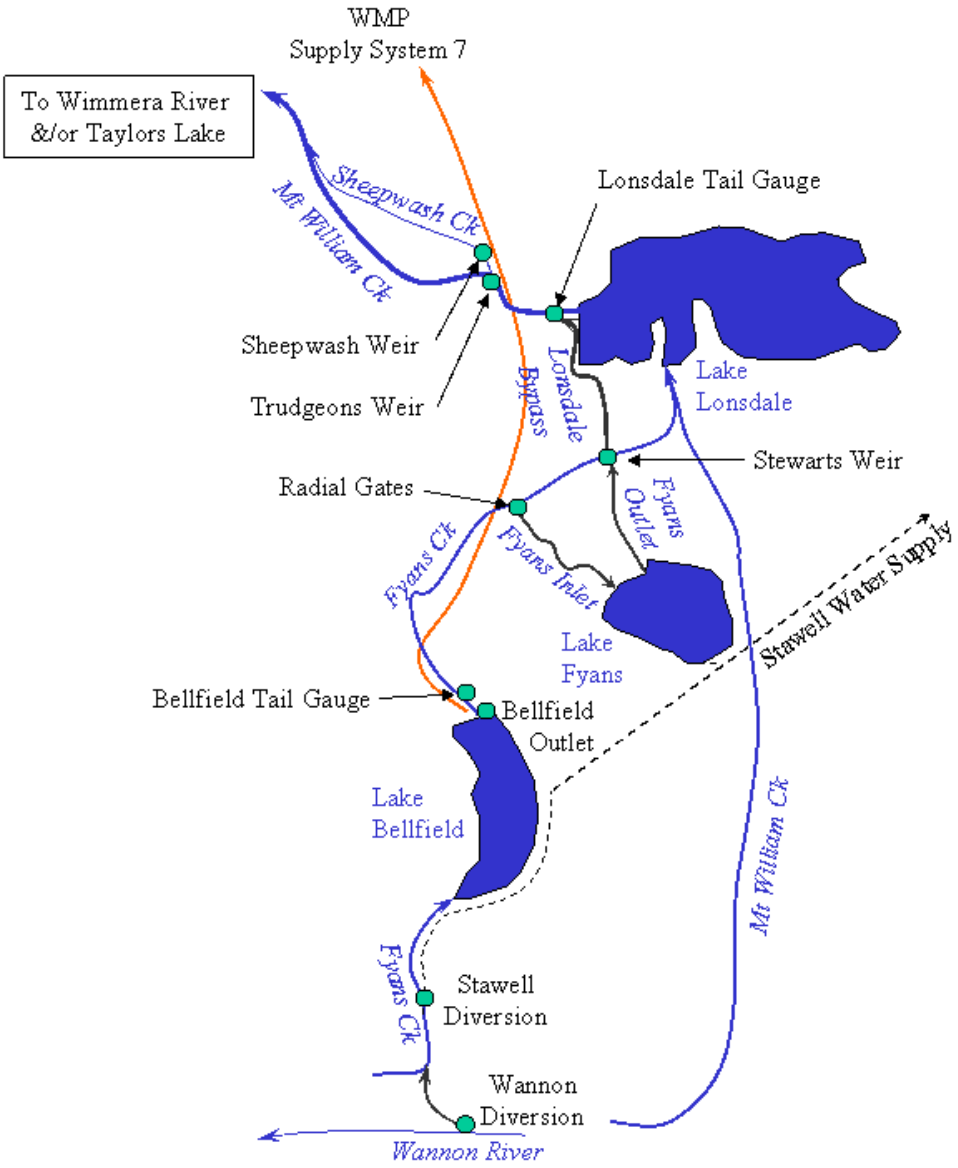

Figure 1: General layout of Lake Fyans

Overview of January 2011 Flood Event

The Lake Fyans catchment received about 155 mm of rain over a five-day period in January 2011. This rainfall resulted in significant stream flows within Stoney Creek and Fyans Creek. To minimise the impact of these flows, the Fyans Inlet Channel was closed during the peak of the flooding, and re-opened shortly after. A volume of about 1,200 ML was harvested into the reservoir.

Lake Fyans Facts and Figures	
Maximum Operating Level	203.80m AHD
Maximum Operating Volume	18,460 ML
Spillway Level	No spillway
Crest Level	206.20m AHD
Capacity of Inlet Channel	200 ML/d
Maximum Discharge	120 ML/d
Catchment Area	13.2 km²
Surface Area When Full	5.3 km²
Major Tributary	Fyans Creek via Fyans Inlet Channel

Current Operating Rules

- To operate to the maximum operating level throughout the year.
- To direct excess water to reservoirs downstream where spare capacity exists.
- If circumstances allow, to route water through the lake to maintain water quality.
- As Lake Fyans is an off-stream reservoir and its capacity to receive flows from Fyans Creek is limited, it plays no role in flood mitigation.

Proposed Operating Rules

- As described in *Current Operating Rules* above. *
- To adopt the current maximum operating level as the Full Supply Level.

Glossary

AHD – Australian Height Datum, used for altitude measurement. Zero is the mean sea level for the period 1966-68.
Freeboard - Height between maximum design operating level and the top of the bank.
Full Supply Level - The maximum normal operating level of a reservoir behind a dam.
* – these rules are not subject to negotiation as they are necessary for water supply purposes.

Reference: Grampians headworks system fact sheet

September 2011