discussion paper

GWMWater

ABN 35 584 588 263

11 McLachlan Street
(PO Box 481)
Horsham Victoria 3402

Tel: 1300 659 961
Fax: 03 5381 9881
Email: info@gwmwater.org.au
Website: www.gwmwater.org.au

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

Lake Lonsdale Operating Rules

Lake Lonsdale is a large, shallow reservoir located on the Mt William Creek. It has a very large catchment area. The Mt William Creek catchment is not reliable during times of drought but can be a substantial producer of water during wetter years.

Lake Lonsdale was originally developed to supply the Wimmera-Mallee Domestic and Stock channel system, however, its role has changed considerably following completion of the Wimmera Mallee Pipeline (WMP). Lonsdale continues to play a significant role in the overall water supply system, is a key source of water for the environment, and is highly valued for its recreational use.

Because of its large surface area, Lake Lonsdale has very high evaporative losses. To assist in reducing evaporation losses, a Maximum Operating Level (MOL) has been introduced which is 0.5 m below the spillway level.

The principle operating objective for Lake Lonsdale is to fill the lake as close to the MOL as practicable throughout the year. When levels increase above MOL, water will be released and directed via the Mt William Creek to the Wimmera River, transferred to Taylors Lake or routed through Taylors Lake back to the Wimmera River if the water quality is suitable.

The outlet capacity of Lake Lonsdale is nominally 600 ML/day, but releases are generally limited to a maximum of 300 ML/day owing to the capacity of the channel and waterways downstream and to minimise inconvenience to downstream landowners.

The MOL at Lake Lonsdale introduces limited capacity to absorb flood flows compared to previous operating practices. Lake Lonsdale levels are not actively managed during times of flood, as the outlet does not provide any significant capacity to release water quickly. During a major flood, access to the manually-operated valves is not always possible, further limiting the ability to release water in response to inflows.

Mt William Creek is used to convey water downstream from Lake Lonsdale, delivering mostly environmental water.

With the completion of the WMP, Lake Lonsdale plays a key role in returning water to the environment by providing environmental passing flows. These rules are in place between the months of June to November inclusive and provide a release of up to 60 ML/day into the Mt William Creek as long as there are inflows occurring at the same time. This water is directed to the Wimmera River.

The operation of Lake Lonsdale needs to be coordinated with the water quality requirements of Taylors Lake. The Mt William Creek below Lake Lonsdale is known for its good water quality and is preferentially harvested into Taylors Lake. However, water held within Lake Lonsdale can often be of relatively poor quality and so releases can interfere with Taylors Lake operations downstream. This needs to be carefully managed. Figure 1 shows the general layout of Lake Lonsdale in relation to nearby reservoirs.

Lake Lonsdale has a long history of providing recreation for the region. The operation of Lake Lonsdale will be managed to facilitate recreation as much as practicable. However, the role of Lake Lonsdale within the broader water supply system will always take precedence. GWMWater has formed a working group to prepare a management plan for Lake Lonsdale. This plan will assist with identifying how operations can be managed to maximise recreational activities in the future.

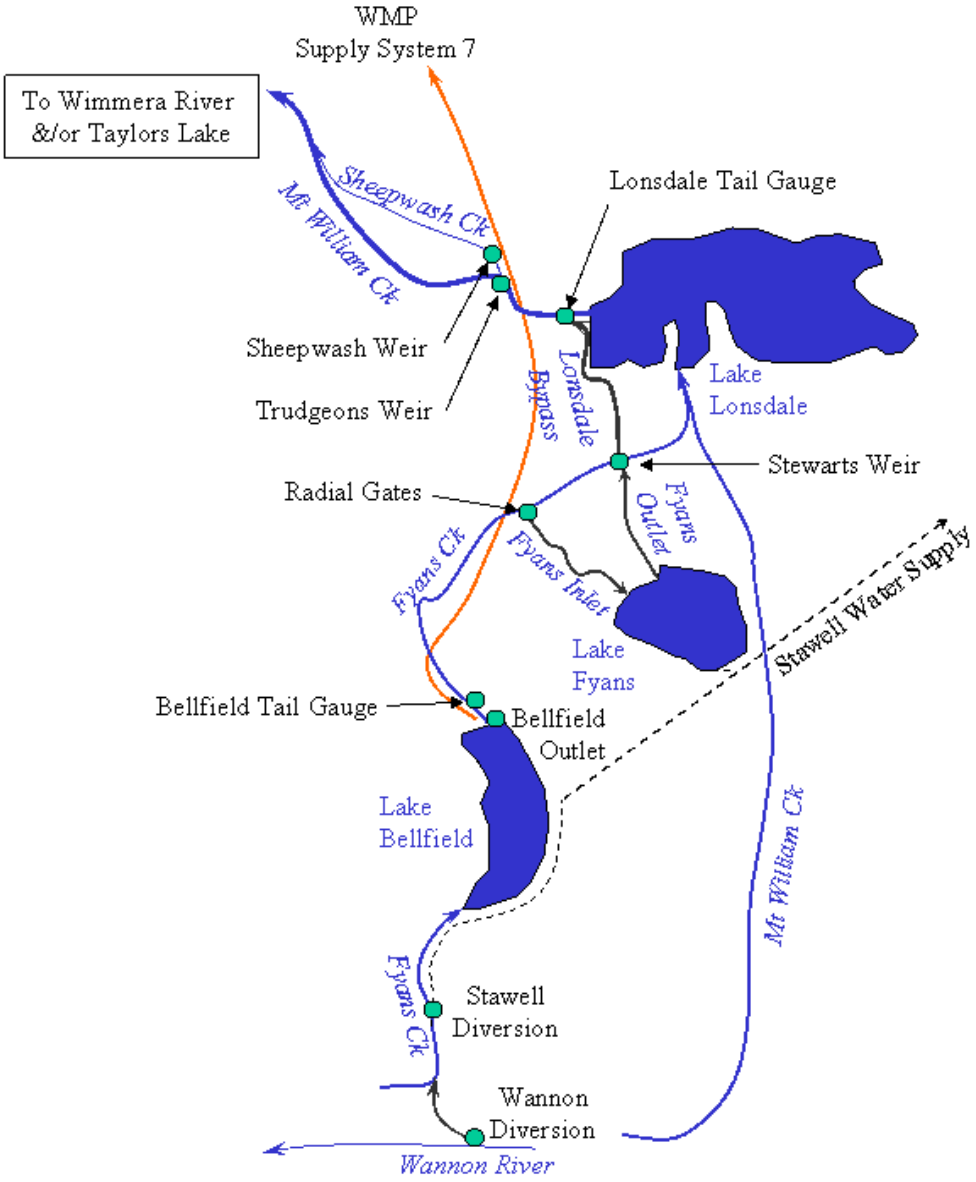

Figure 1: General layout of Lake Lonsdale

Overview of the January 2011 Flood Event

Rain over a five-day period saw a total of about 267 mm fall across the upper Mt William Creek catchment during the January 2011 flood. Immediately before the rain fell, the reservoir had about 15,000 ML of spare capacity below the spillway level.

Damage to some monitoring sites and limited access during the flood has meant that exact figures were not able to be obtained, however it is estimated that inflows received over several days totalled approximately 75,000 ML. This volume is enough to fill and spill the reservoir from empty. Lake Lonsdale absorbed the flood water to an extent where the peak spill was about 30,000 ML/day. All spilled water followed its natural flood path down the Mt William Creek to the Wimmera River.

After the flood event GWMWater commenced releasing water at a controlled rate to bring levels back down to the maximum operating level.

Lonsdale Facts and Figures	
Full Supply Level (FSL)	187.62m AHD
Full Supply Volume	65,480 ML
Maximum operating level (MOL)	187.12m AHD
Volume at MOL	53,300 ML
Primary Spillway Length	244m
Primary Spillway Capacity	88,130 ML/d
Secondary Spillway Length	440m
Secondary Spillway Capacity	149,470 ML/d
Maximum Discharge from Outlet	600 ML/d
Catchment Area	1,015 km²
Surface Area when at FSL	26 km²
Major Tributaries	Mt William Creek and Fyans Creek
Average Inflow (2009)	52,000 ML/year

Current Operating Rules

- To operate to a MOL 0.5 m below the spillway throughout the year.
- To provide environmental passing flows between the months of June and November inclusive.

Proposed Operating Rules

- To operate to a MOL 0.5 m below the spillway throughout the year. *
- To provide environmental passing flows between the months of June and November inclusive. *
- To operate the reservoir with consideration to its recreation potential.
- To operate the reservoir with due consideration to water quality, water supply and harvesting imperatives to Taylors Lake.

Glossary

AHD – Australian Height Datum, used for altitude measurement. Zero is the mean sea level for the period 1966-68.
Freeboard - Height between normal maximum operating level and the top of the bank or spillway.
Full Supply Level - The normal maximum 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