TWEED SHIRE COUNCIL

Policy

Clarrie Hall Dam water release policy

Version 1.1

Adopted by at its meeting on 27 October 2022

Division:	Engineering
Section:	Water and Wastewater - Operations
File Reference:	Council Policies/Protocols/Procedures
Historical Reference:	See Version Control

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1. Policy objective

This Policy describes Council's operational practices in relation to water releases from Clarrie Hall Dam and in particular Council's function during high rainfall events

1.1. Definitions

Full Supply Level (FSL): The maximum normal operating level of water in a dam. For Clarrie Hall Dam, this is the crest level of the spillway.

Dam: A built structure that creates a reservoir.

Reservoir: A body of water retained by a dam.

Spillway: A built structure that allows water to safely pass.

Uncontrolled spillway: A spillway without gates or any ability to regulate the flow of water. When the water level rises above the FSL, it begins to flow over the spillway crest. This release of water is not controlled. The amount and speed of water flowing over an uncontrolled spillway increases as the height of water above the spillway crest increases.

Surcharge: This is the water in a reservoir above the FSL, which will flow over the spillway crest.

Attenuation: The process of slowing down the rate of flowing water.

Freeboard: The vertical distance between the surface of water stored in a dam and the top of the dam.

Outlet works: The combination of intake structure, screens, conduits, tunnels and valves that permit the controlled release of water from a reservoir.

Probable Maximum Precipitation (PMP): Theoretically, the greatest depth of rainfall during a period of time that is physically possible over an area of land where rainfall collects and drains into a common outlet.

Probable Maximum Flood (PMF): Theoretically, the maximum flood resulting from PMP and where applicable snowmelt, coupled with the worst flood-producing catchment conditions that can be realistically expected in the prevailing weather conditions.

1.2. Policy background

Tweed Shire Council is the owner of Clarrie Hall Dam, which is located on Doon Doon Creek approximately 15 km south-west of Murwillumbah. Clarrie Hall Dam is designed for storing water for water supply. It has a storage capacity of 16,000 mega litres at Full Supply Level (FSL) and a catchment area of 60.2 square km. The spillway discharge capacity at zero freeboard is 1,355 cubic metres per second (i.e., 117,072 megalitres a day), which is 7 times the capacity of the dam. The maximum capacity of the outlet works at FSL is 9.7 cubic metres per second (i.e., 838 megalitres a day). The outlet works are designed to meet guidelines for lowering the water level of the dam in the extremely rare event of a potential dam failure.

2. Policy

Clarrie Hall Dam has an uncontrolled spillway. The spillway at Clarrie Hall Dam is designed for the sole purpose of safely passing a PMF event without compromising the integrity of the dam or spillway structures. There is no capability to regulate or change the flow through the spillway nor change the FSL. The dam cannot be operated to regulate or maintain a surcharge above the spillway level. A dam with an uncontrolled spillway will still inherently attenuate and pass water when water surcharges above the FSL and naturally store water up to the level of the spillway crest.

Tweed Shire Council cannot and shall not provide any form of flood mitigation operation at Clarrie Hall Dam other than what naturally occurs with an uncontrolled spillway. Tweed Shire Council shall not manage the reservoir level by pre-releasing water to provide any form of storage capacity for flood-mitigation purposes. Therefore, Tweed Shire Council shall only manage releases from Clarrie Hall Dam for the following reasons:

1. Dam safety – Tweed Shire Council will undertake controlled releases of water from Clarrie Hall Dam when it is deemed necessary for dam safety reasons

2. Water supply – Tweed Shire Council will release water to supplement flows in the Tweed River for extraction at Bray Park Weir for town water supply purposes. Council will manage releases to balance the extraction needs at Bray Park Weir

3. Environmental flow obligations in downstream waterways

4. Water quality, including but not limited to managing algae blooms or saltwater intrusion

5. Testing dam operations or inspecting outlet works or spillway

6. For construction works related to the dam.

During a flood, Tweed Shire Council will continuously monitor the safety of Clarrie Hall Dam and provide information to relevant authorities consistent with Council's Dam Safety Emergency Plan.

3. Related legislation

Dam Safety Act 2015
Dam Safety Regulation 2019
Water Management Act 2000
Water Sharing Plan for the Tweed River Area Unregulated and Alluvial Water Sources Order 2010 (2010 No 704)

4. Compliance

Not applicable.

5. Forms

Not applicable.

6. Review period

This Policy will be reviewed within 12 months of the election of each new council or more frequently in the event of any legislative change

7. Useful links

Tweed Shire Council website

8. Version control

Version #	Summary of changes made	Date changes made
1.1	Adopted by Council	27/10/2022