22 September 2025

Genesis Energy Ltd.

Lake Takapō / Tekapo High Flow Management Plan

Draft September 2025

Purpose

The purpose of this High Flow Management Plan (**HFMP**) is to document how the flows via Tekapo Power Scheme structures controlled by Genesis Energy Ltd (**Genesis**) (Tekapo Intake Structure, Tekapo Control Structure (**Gate 16**), Tekapo A and B Power Stations, Lake George Scott Weir, the Tekapo Canal and Gate 17) will be managed to reduce Lake Takapō / Tekapo levels as required by Schedule One of CRC240290 and CRC240291 and to protect the integrity of the structures during periods when inflows to Lake Takapō / Tekapo raise the lake level above the maximum control lake level specified in Schedule One condition 1(a) of CRC240290 and CRC240291. The HFMP is focused on the discharge requirements from Lake Takapō / Tekapo, rather than prescriptive operation of the individual structures across the Tekapo Scheme.

Maximum Control Lake Level

1. When the level of Lake Takapō / Tekapo exceeds the maximum control lake level specified in Table 1 during the relevant period, the Tekapo Power Scheme will be operated in accordance with this HFMP so as to return the level of the lake to the maximum control lake level specified in Table 1 (or lower).

Table 1: Maximum Control Lake Level

Period	Lake Level (metres above sea level)
March	710.00
April	710.30
May	710.60
June and July	710.90
August	710.30
September to February (inclusive)	709.70

Design Flow

2. The Probable Maximum Flood (PMF) design flow[1] for the Tekapo Power Scheme structures are listed in Table 2.

Table 2: PMF Design Flow of the Tekapo Power Scheme Structures

Location	Design Flow (m^3/s)
Gate 16	620
Gate 17	130
Lake George Scott Weir	600
Tekapo A Power Station	130
Tekapo Canal	130
Tekapo B Power Station	130

Combined Total Discharge

3. When lake levels are above the maximum control lake level specified in Table 1 the Combined Total Discharge (Tekapo A Power Station (via the Tekapo Intake Structure) plus Gate 16) shall not be less than the flow given in Table 3:

Table 3: Combined Total Discharge Flow

Height above Maximum Control Lake Level (m)	Combined Total Discharge Flow (m^3/s)
0.0	60
0.2	110
0.4	125
0.6	165
0.8	190
1.0	215
1.2	240
1.4	265
1.6	295
1.8	320
2.0	345
2.2	370
2.4	395
2.6	425
2.8	450

[1]Design flow refers to the expected maximum flow during management of the PMF; these may change following flood reviews. To avoid doubt, the design flow does not relate to the maximum engineering design capacity of the structures.

Height above Maximum Control Lake Level (m)	Combined Total Discharge Flow (m^3/s)
3.0	475
3.2	500
3.3	515
3.4	525
3.5	535
3.6	550
3.7	560
3.8	575
3.9	585
4.0	595
4.1	610
4.2	620
4.3	635
4.4	645
4.5	655

4. The flow values in Table 3 are minimum discharge requirements; Genesis may discharge in excess of these requirements.

5. Gate 17 may be operated at any time to divert flows into the Tekapo Canal.

Initial Discharge Steps

6. The initial discharge to the Takapō / Tekapo River from the Lake George Scott Weir must not exceed a maximum flow of 20 m^3/s for a period of not less than six hours.

7. The next discharge step from the Lake George Scott Weir must not exceed a maximum flow of 45 m^3/s and must not be increased for at least three hours.

8. Unless lake levels are 0.4 m or more above the maximum control lake level specified in Table 1, further increases in flow from the Lake George Scott Weir must ensure that:

    (a) The maximum increase in flow must not exceed 20 m^3/s; and

    (b) There must be at least one hour between flow changes.

9. Gate 16 and 17 may be operated in advance of the maximum control lake level being reached, including (but not limited to) when the lake level is rising rapidly, and/or when there are significant inflows forecast, and/or if there are operational or structural issues that necessitate a pre-emptive drawdown of Lake Takapō/Tekapo to meet the required Combined Total Discharge and/or the lake level in Table 1.

Recession Rules

10. On a falling lake the Combined Total Discharge shall be progressively lowered only if the forecast inflow is lower than the next lower Table 3 discharge.

11. If Gate 16 is in use in a manner that results in flow from the Lake George Scott Weir, the discharge from the weir shall be reduced at a maximum rate of up to 20 m^3/s per hour until the flow from the weir reaches 20 m^3/s.

12. When the discharge from the Lake George Scott Weir is at or below 20 m^3/s, the following minimum flows from the Weir must be maintained to simulate natural recession of the Takapō / Tekapo River below the Weir:

    - Step One: 20 m^3/s for 24 hours;
    - Step Two: 12 m^3/s for 24 hours;
    - Step Three: 5 m^3/s for 24 hours;
    - Step Four: 2 m^3/s for 48 hours; and
    - Step Five: cease flow from Lake George Scott Weir.

General Provisions

13. Should flow to the Takapō / Tekapo River from Lake George Scott Weir be initiated when Lake Takapō / Tekapo is below the maximum control lake level specified in Table 1, then flows from the Weir must be managed in accordance with the provisions set out in this HFMP. The exception to this is that any flow under 10 m^3/s from the Weir for under 90 minutes in duration will not be deemed to trigger the recession rules.

14. Reasonable endeavours must be taken to operate Gate 16 and Gate 17 to reduce flow fluctuations to the Takapō / Tekapo River from the Lake George Scott Weir.

Notification Procedures

15. When it is anticipated that the Initial Discharge Steps of this HFMP will be implemented, Genesis must give 24 hours advanced written and/or verbal notice of the intention to implement this HFMP to:

    a. [Waitaki Rūnaka] – [Titles]

    b. Canterbury Regional Council [Titles RMO + Flood controllers/River Engineers]

c. Department of Conservation, Twizel – [Titles]

Review

16. This HFMP will be reviewed at intervals of not more than 10 years by a suitably qualified and experienced person(s).

17. Any amendments to this HFMP will be provided to the Canterbury Regional Council for certification, following consultation with Canterbury Regional Council, and the operators of the Waitaki Power Scheme.