

Resource Operations Licence

Water Act 2000



Name of Licence

Awoonga Water Supply Scheme Resource Operations Licence

Holder

Gladstone Area Water Board

Water Plan

The licence relates to the Water Plan (Boyne River Basin) 2013.

Water Infrastructure

The water infrastructure to which the licence relates is detailed in Attachment 1.

Authority to interfere with the flow of water

The licence holder is authorised to interfere with the flow of water to the extent necessary to operate the water infrastructure to which the licence relates.

Authority to use watercourses to distribute water

The licence holder is authorised to use the Boyne River from the upstream limit of the impoundment of Awoonga Dam to the Awoonga Dam (AMTD 22.7 km) for the distribution of supplemented water, including sections of tributaries where supplemented water is accessible.

Conditions

1. Requirement for Operations Manual

- 1.1. The licence holder must operate in accordance with an approved operations manual.
- 1.2. The approved operations manual must include:
 - 1.2.1. operating rules for water infrastructure,
 - 1.2.2. water sharing rules, and
 - 1.2.3. seasonal water assignment rules.

2. Environmental management rules

- 2.1. The licence holder must comply with the requirements as detailed in Attachment 2.

3. Metering

- 3.1. The licence holder must meter the taking of water under all water allocations managed under this licence.

4. Monitoring and Reporting Requirements

- 4.1. The licence holder must carry out and report on the monitoring requirements as set out in Attachment 3.
- 4.2. The licence holder must provide any monitoring data required under 3.1 to the chief executive within a stated time upon request.

- 4.3. The licence holder must ensure that the monitoring, including the measurement, collection, analysis and storage of data, is consistent with the Water Monitoring Data Collection Standards¹.
- 4.4. The licence holder must ensure that the transfer of data and reporting are consistent with the Water Monitoring Data Reporting Standards².

5. Other Conditions

- 5.1. The operating and supply arrangements and the monitoring required under this licence do not apply in situations where implementing the rules or meeting the requirements would be unsafe to a person or persons. In these circumstances the licence holder must comply with the reporting requirements for operational or emergency prescribed in Attachment 3.
- 5.2. The licence holder may at any time submit an interim program or an amendment to an existing program to the chief executive for approval in accordance with Attachment 4, if the holder proposes to operate in a way that does not meet the requirements of this licence.
- 5.3. Where there is conflict between the requirements of this licence and an approved program, the program prevails for the time it is in place.

Commencement of licence

The licence took effect on 22 November 2006

Granted on 22 November 2006.

Amended under section 1259 of the *Water Act 2000* on 23 December 2016.

SIGNED

Peter Burton
A/Executive Director, Water Policy

¹ The Water Monitoring Data Collection Standards can be inspected at any of the department's offices or accessed online at: <www.dnrm.qld.gov.au>

² The Water Monitoring Data Reporting Standards can be inspected at any of the department's offices or accessed online at: <www.dnrm.qld.gov.au>

Attachment 1 Infrastructure details for Awoonga Water Supply Scheme

Awoonga Dam—Boyne River at AMTD 22.7 km

Description of water infrastructure	
Description	concrete-faced dam with rockfill embankments
Full supply level	EL 40.00 m AHD
Minimum operating level	EL 13.6 m AHD (invert level of river outlet works)
Saddle dam(s)	homogeneous earth fill—crest @ EL 47.9 m AHD and embankment crest length of 380 metres
Gates	nil
Storage capacity	
Full supply volume	777 000 ML
Minimum operating volume	6400 ML (dead storage for releases via river outlet works)
Spillway arrangement	
Description	un-gated ogee concrete gravity spillway
Spillway level	crest EL 40 m AHD
Spillway width	110.95 metres
Outlet works	
Description works	The intake towers connect to a common DN2200 pipe prior to bifurcating to the GAWB (Awoonga to Gladstone) pump station, SunWater (Awoonga to Callide) pump station and river discharge. Cone valve and isolation butterfly valve at river discharge are DN1900. Overall length of outlet conduit is 191 m.
Inlet	The main intake tower is a reinforced concrete dry well structure and has a total of 11 potential offtakes, located between EL 10.5 and 40.5m. Five offtakes, between EL 19.5 and 30.5 m, are operational with DN1500 butterfly valves and DN1600 horizontal pipe connecting to a DN2200 vertical pipe that leads to the river discharge and pumping stations. Two lower offtakes at EL 10.5 and 15 m currently have DN1600 connecting pipework and do not have DN1500 valves, but which could be reinstated with minor works. The remaining four higher level intakes between 33.0 and 40.5 m do not have connecting pipework or valves and are blanked off. There is also an auxiliary intake that is a reinforced concrete wet well structure and which can operate at various levels above EL 26 m.
Cease to flow level	EL 13.6 m AHD
Maximum discharge rate	maximum flow rate to river outlet is 1100 ML/day

Attachment 2 Environmental management rules

1 Operating levels for Awoonga Dam

- (1) The resource operations licence holder may release supplemented water from Awoonga Dam only if the release is necessary to comply with—
 - (a) sections 3 and 4; or
 - (b) operating rules for releases for downstream water needs.
- (2) Despite subsection (1), the resource operations licence holder must not release water from Awoonga Dam—
 - (c) for releases which are to comply with sections 3 or 4—when the water level in the dam is below 30 m AHD; and
 - (d) for releases which are to comply with operating rules for releases for downstream water needs—when the water level in the dam is below 27 m AHD or above 30 m AHD.

2 Change in rate of release from Awoonga Dam

The resource operations licence holder must minimise the occurrence of adverse environmental impacts by ensuring that any change in the rate of release of water from Awoonga Dam into a watercourse occurs incrementally.

3 Base flow release rule

- (1) This section applies if—
 - (a) the water level in Awoonga Dam is between 30m AHD and its full supply level; and
 - (b) the weekly base flow volume is greater than 20 ML; and
 - (c) a trigger flow release under section 4 has not commenced.
- (2) The resource operations licence holder must release the weekly base flow volume at a constant daily release rate over the 7 day period following each weekly assessment period.
- (3) In this section—

daily base flow volume, for a day in the weekly assessment period, means the lesser of the estimated daily dam inflow and the maximum daily base flow for the month in Table 1.

estimated daily dam inflow, for a day in the weekly assessment period, means the total combined daily flow volume, for the Boyne River at Milton (GS 133004A) and Diglum Creek at Marlua (GS 133003A), multiplied by 1.64.

weekly assessment period means the 7 day period starting each Monday.

weekly base flow volume means the sum of the daily base flow volumes for each day in a weekly assessment period.

Table 1 Maximum daily base flow

Month	Maximum daily base flow (ML)
January	24
February	50
March	53
April	39
May	25
June	29
July	33
August	30
September	26
October	21
November	20
December	16

4 Trigger flow release rule

- (1) This section applies if—
 - (a) the water level in Awoonga Dam is between 30m AHD and its full supply level; and
 - (b) a trigger flow event has either commenced or occurred.
- (2) The resource operations licence holder must for each trigger flow event—
 - (a) determine the trigger flow release volume as—
 - (i) for an event with a duration of less than six days, the lesser of—
 - (A) the dam inflow during the event; and
 - (B) 18 000 ML; or
 - (ii) for other events—18 000 ML; and
 - (b) release the trigger flow release volume—
 - (i) at a minimum rate of 864 ML per day;
 - (ii) over a maximum period of 21 days; and
 - (iii) starting six days after the commencement of a trigger flow event.
- (3) If a subsequent trigger flow event starts during the release of a trigger flow release volume, the resource operations licence holder must—
 - (a) cease releasing the trigger flow release volume; and
 - (b) determine and release a new trigger flow release volume for the subsequent trigger flow event in accordance with subsection (2).
- (4) The resource operations licence holder must estimate dam inflows using the storage inflow derivation methodology approved by the chief executive.
- (5) In this section—

dam inflow, for a period, means the volume of water flowing into Awoonga Dam during the period.

trigger flow event means a flow sequence between the months of September to March, that starts with at least four consecutive days of dam inflow greater than or equal to 3210 ML per day, and ends when the dam inflow recedes to less than 3210 ML per day.

Attachment 3 Licence holder monitoring and reporting

Part 1 Monitoring requirements

Division 1 Water quantity

1 Stream flow and storage water level data

The licence holder must—

- (a) record storage water level and stream flow data in accordance with table 2;
- (b) determine and record the daily base flow volume as defined in the approved operations manual for this licence; and
- (c) determine and record inflow into Awoonga Dam based on the approved storage inflow derivation methodology.

Table 2 – Locations where continuous time series height and volume data and daily flow data are required

Water level and volume data	Daily flow data
—	Boyne River @ Milton (GS133004A) ³
—	Diglum Creek @ Marlua (GS133003A)
Awoonga Dam Headwater	—

2 Releases from Awoonga Dam

- (1) The licence holder must measure and record—
 - (a) the daily volume released;
 - (b) the release rate, and for any change in release rate—
 - (i) the date and time of the change; and
 - (ii) the new release rate; and
 - (a) the reason for each release; and
 - (b) the inlet level used for each release and reason for deciding to release from that particular inlet level.
- (2) In addition to the requirements under subsection (1) the licence holder must determine and record—
 - (a) the weekly baseflow volume as defined in the approved operations manual for this licence;
 - (b) the trigger flow release volume as defined in the approved operations manual for this licence; and

³ Milton gauging station will be inundated once Awoonga Dam has been raised to 45 m AHD. The further upstream Nagoorin gauging station will then replace the Milton gauging station.

- (c) the release for downstream water needs as defined in the approved operations manual for this licence.

3 Carryover

The licence holder must record details of the total volume of water carried over to the water year from the previous water year.

4 Water taken by water users

The licence holder must record the total volume of water, taken by each water user as follows—

- (a) the total volume of water taken each day;
- (b) the total volume of water entitled to be taken at any time; and
- (c) the basis for determining the total volume of water entitled to be taken at any time.

Division 2 Impact of infrastructure operation on natural ecosystems

5 Water quality

The licence holder must monitor and record water quality data in relation to relevant infrastructure listed in Attachment 1 of this licence.

6 Bank condition

- (1) The licence holder must inspect banks for evidence of collapse and/or erosion identified within ponded areas of Awoonga Dam and downstream reaches, following instances of—
 - (a) rapid water level changes; or
 - (b) large flows through storage, or
 - (c) other occasions when collapse and/ or erosion of banks may be likely.
- (2) For subsection (1), downstream of the relevant infrastructure means the distance of influence of infrastructure operations.

7 Fish stranding

The licence holder must record and assess reported instances of fish stranding in watercourses and ponded areas associated with the operation of the licence holder's infrastructure as listed in Attachment 1 of this licence to determine if any instance is associated with the operation of that infrastructure.

Part 2 Reporting requirements

8 Reporting requirements

The licence holder must provide—

- (a) annual reports for the previous water year; and
- (b) if required—an operational report or emergency report.

Division 1 Annual reporting

9 Annual report

- (1) The licence holder must submit an annual report to the chief executive after the end of the water year.
- (2) The annual report must include—
 - (a) water quantity monitoring results required under section 10;
 - (b) details of the impact of storage operation on natural ecosystems as required under section 11; and
 - (c) a discussion on any issues that arose as a result of operating in accordance with this licence.

10 Water quantity monitoring

The licence holder must include in the annual report—

- (a) the periods when the water level in Awoonga Dam—
 - (i) was at or below 30m AHD and at or below 27 m AHD; or
 - (ii) was above full supply level.
- (b) the total annual volume of supplemented water taken, including—
 - (i) the total volume of water taken;
 - (ii) the total volume of water entitled to be taken; and
 - (iii) the basis for determining the total volume entitled to be taken, including any volume of water carried over from the previous water year;
- (c) the total volume of water taken within each month for the Callide and Gladstone pipelines;
- (d) the volume of water to be carried over into the next water year and the basis for determining that volume;
- (e) the total volume of water released within each month to meet the requirements of—
 - (i) the base flow release rule specified in the approved operations manual for this licence;
 - (ii) the trigger flow release rule specified in the approved operations manual for this licence; and
 - (iii) downstream water users specified in the approved operations manual for this licence;
- (f) for each trigger flow event determined to have occurred as specified in the approved operations manual for this licence—
 - (i) the start and end dates for the event; and
 - (ii) the trigger flow release volume released for the event;
- (g) all details of changes to the storage and delivery infrastructure, or the operation of storage and delivery infrastructure that may impact on compliance with this licence;
- (h) details of any new monitoring devices used such as equipment to measure stream flow; and
- (i) the details and status of any interim programs implemented under this licence.

11 Impact of infrastructure operation on natural ecosystems

The licence holder must include in their annual report—

- (a) a summary of the environmental considerations made by the licence holder in making operational and release decisions;
- (b) a summary of the environmental outcomes of the decision including any adverse environmental impacts;
- (c) a summary of bank condition and fish stranding monitoring and assessment including—
 - (i) results of investigations of bank slumping and/or erosion identified in the ponded area of Awoonga Dam and downstream reaches;
 - (ii) results of any investigations of fish stranding downstream of the storage; and
 - (iii) changes to the operation of the storage to reduce instances of bank slumping and/or erosion or fish stranding; and
- (d) a discussion and assessment of the following water quality issues—
 - (i) thermal and chemical stratification in the storage;
 - (ii) contribution of the storage and its management to the quality of water released;
 - (iii) cumulative effect of the storage on water quality within and downstream of the storage;
 - (iv) cyano-bacterial population changes in response to stratification in the storage; and
 - (v) any proposed changes to the monitoring program as a result of evaluation of the data.

Division 2 Operational or emergency reporting

12 Operational or emergency reporting⁴

- (1) The licence holder must notify the chief executive within one business day of becoming aware of—
 - (a) any of the following operational incidents—
 - (i) a non-compliance with the operating and supply arrangements in the approved operations manual for this licence; and
 - (ii) instances of fish stranding and kills, or bank slumping and erosion within the ponded area of Awoonga Dam and downstream reaches;
 - (b) an emergency where, as a result of the emergency, the licence holder cannot comply with the conditions of this licence.
- (2) The licence holder must provide to the chief executive upon request and within the timeframe requested a report which includes details of—
 - (i) the incident or emergency;
 - (ii) conditions under which the incident or emergency occurred;
 - (iii) any responses or activities carried out as a result of the incident or emergency; and

⁴ This does not preclude requirements for dam safety under the *Water Act 2000* and any other applicable legislation.

- (iv) in relation to an emergency only, any requirements under this licence that the licence holder is either permanently or temporarily unable to comply with due to the emergency.

Attachment 4 Interim programs

1 Submission of interim program

The resource operations licence holder may submit at any time an interim program to the chief executive for approval, including a timetable for returning to full compliance with the licence and interim arrangements.

2 Requirement for additional information

The chief executive, in considering any submitted interim program, may request additional information.

3 Approving an interim program

- (1) The chief executive, in dealing with a submitted interim program, may either—
 - (a) approve the interim program with or without conditions;
 - (b) require the resource operations licence holder to submit a revised interim program.
- (2) In making a decision under subsection (1), the chief executive must consider the public interest.
- (3) Within 10 business days of making a decision on an interim program submitted under this section, the chief executive must notify the resource operations licence holder of the decision.

4 Implementing and publishing interim program

Following approval of the program by the chief executive, the resource operations licence holder—

- (a) must implement and operate in accordance with the approved interim program; and
- (b) make public details of the approved interim program on its internet site.

5 Relationship between interim program and licence

- (1) Where there is conflict between the provisions of this licence and the provisions of an approved interim program, the approved interim program prevails for the time that the interim program is in place.
- (2) Where an interim program has been submitted under section 1, but not dealt with under section 3, the resource operations licence holder may operate under the interim program despite the conditions of this licence until a decision is made under section 1.

Attachment 5 Glossary

Term	Definition
AHD	The Australian Height Datum, which references a level or height to a standard base level.
AMTD	Adopted middle thread distance
EL	Elevation.