

Resource Operations Licence

Water Act 2000



Name of licence

Bowen Broken Water Supply Scheme Resource Operations Licence

Holder

SunWater Limited

Water plan

The licence relates to the Water Plan (Burdekin Basin) 2007.

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 following watercourses for the distribution of supplemented water—

Bowen River, from its confluence with the Broken River (AMTD 115.5 km) downstream to the upstream limit of the impounded area of Blue Valley Weir (AMTD 5.5 km); and

Broken River, from and including the impounded area of Eungella Dam (AMTD 71.8 km) downstream to its confluence with the Bowen River (AMTD 115.5 km).

Conditions

1. Operating and supply arrangements

1.1. The licence holder must operate the water infrastructure and supply water in accordance with an approved operations manual made under this licence.

2. Environmental management rules

2.1. The licence holder must make release from water infrastructure in accordance with the environmental management rules set out in attachment 2.

3. Metering

3.1. The licence holder must meter the taking of water under all water allocations and seasonal water assignments 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 4.1 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.

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>

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 operational or emergency reporting requirements prescribed in part 2 of attachment 3.
- 5.2. The licence holder may at submit an interim program or critical water sharing arrangements 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 14 December 2009

Granted on 14 December 2009

Amended under section 1259 of the *Water 2000* on 11 May 2017.

SIGNED

**Leanne Barbeler
A/Executive Director, Water Policy**

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 Bowen Broken Water Supply Scheme

Table 1 – Eungella Dam–Broken River—AMTD 71.8 km

Description of water infrastructure	
Description	Earth and rockfill dam with a spillway channel against the left bank.
Full supply level	562.71 m AHD
Saddle dam(s)	Nil
Fabridams	Nil
Gates	Nil
Storage capacity	
Full supply volume	112 400 ML
Minimum operating volume	1240 ML
Storage curves / tables	Drawing no: A3-205005/A3-205006
Spillway arrangement	
Description of works	The concrete spillway consisting of a side weir, concrete channel and ski jump exit
Spillway level	562.71 m AHD
Spillway width	56.4 m
Discharge characteristics	1140 m ³ /s (at water level 568.0 m AHD) Drawing no. 36817
River inlet/outlet works	
Description of works	Water is released through a 3.96 m diameter concrete conduit. Two 915 mm guard valves and two 840 mm cone dispersion valve control flows at the outlet. The conduit was designed so that it could be used as a two-way channel in the event of a pumped storage hydro-electric power station being built in association with the dam.
Inlet	This dam does not have an inlet tower. The inlet trash rack and bulkhead gate are raised and lowered on tracks running up the face of the dam.
Cease to flow levels	532.95 m AHD
Maximum discharge rate	Up to 12.0 m ³ /s Drawing no. 118068
Fish transfer system	
Description of works	Nil

Table 2 – Bowen River Weir—Bowen River—AMTD 94.4 km

Description of water infrastructure	
Description	Concrete gravity weir (ogee spillway)
Full supply level	125.70 m AHD
Saddle dam(s)	Nil
Fabridam	Nil
Gates	Nil
Storage capacity	
Full supply volume	943 ML
Minimum operating volume	0.5 ML
Storage curves/tables	Drawing no: 225626
Spillway arrangement	
Description of works	Central concrete ogee spillway
Spillway level	125.70 m AHD
Spillway width	55.0 m
Discharge characteristics	560 ML/d (water level at 135 m AHD) Drawing 76123, Low levels see Drawing 220581
River inlet/outlet works	
Maximum discharge rate	
Fish transfer system	
Description of works	Non operational vertical slot fish ladder

Table 3 – Gattonvale Offstream Storage—Bowen River—AMTD 94.4 km

Description of water infrastructure	
Description	Earthfill embankment (ring tank) adjacent to the left bank of the Bowen River Weir (AMTD 94.4 km). The storage is filled through a rising main pipeline, with the pump station located just upstream of the Bowen River Weir.
Full supply level	161.05 m AHD
Saddle dam(s)	Nil
Fabridam	Nil
Gates	Nil
Storage capacity	
Full supply volume	5230 ML
Minimum operating volume	0 ML
Storage curves/tables	Drawing no: 222058
Spillway arrangement	
Description of works	A bywash in the offstream storage embankment
Spillway level	161.35 m AHD
Spillway width	Not applicable
Discharge characteristics	Approximately 250 ML/day
River inlet/outlet works	
Maximum discharge rate	Inflow: 300 ML/day Outflow: 156 ML/day
Fish transfer system	
Description of works	Nil

Table 4 – Pump stations on the Bowen and Broken rivers

Pump station	Watercourse	AMTD (km)	Maximum discharge rate (ML/day)
Collinsville Lowlift Pump Station	Bowen River	95.5	63
Gattonvale Off-stream Storage Pump Station	Bowen River	94.5	310
Eungella Lowlift Pump Station	Broken River	72	14
Eungella Water Pipeline Pump station	Broken River	72	63

Attachment 2 Environmental management rules

1 Change in rate of release from infrastructure

The licence holder must—

- (a) minimise the occurrence of adverse environmental impacts by ensuring that any change in the rate of release of water from Eungella Dam and Bowen River Weir occurs incrementally; and
- (b) prepare and maintain operating procedures that demonstrate arrangements are in place to achieve the requirements of subsection (a).

2 Operation of Bowen River fishway

- (1) The licence holder must, where practicable, use the fishway to release water from Bowen River Weir to meet the minimum stream flow requirements in attachment 2 section 3.
- (2) When the release of water is greater than the capacity of the fishway, the licence holder must, where practicable, first release water to the full capacity of the fishway and then through the outlet valve and over the crest of the weir.

3 Minimum stream flow requirements

- (1) The nodes at which minimum stream flow requirements are to be measured are described in attachment 2 table 1.
- (2) The licence holder must—
 - (a) measure the inflow to Bowen River Weir at Node D described in attachment 2 table 1.
 - (b) from 1 April to 31 December each year—release the total natural daily inflow to Bowen River Weir, up to a maximum daily volume determined from attachment 2 table 2; and
 - (c) prepare and maintain operating procedures that demonstrate arrangements are in place to achieve the requirements of this section.

Table 1 – Flow monitoring nodes and locations

Flow monitoring node	Location
Node D	Inflow to Bowen River Weir
Node E	Myuna gauging station on the Bowen River (120205A) 44.6 km AMTD

Table 2 – Maximum daily volume releases from Bowen River Weir

Period of release	Releases from Bowen River Weir (ML/day)
1 April – 30 June	up to 40
1 July – 30 September	up to 60
1 October – 31 December	up to 40

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 record storage water level and flow data in accordance with attachment 3 table 1.

Table 1 – Locations where continuous time series height and flow data and storage water level data are required

Continuous time series storage water level data	Continuous time series height and flow data
Eungella Dam Headwater	—
—	Eungella Dam Tailwater
Bowen River Weir Headwater	—
Gattonvale Offstream Storage	—

2 Releases from storages

- (1) The licence holder must measure and record for each release of water from Eungella Dam, Bowen River Weir and Gattonvale Offstream Storage—
 - (a) the daily volume released; and
 - (b) the release rate, and for each change in release rate—
 - (i) the date and time of the change; and
 - (ii) the new release rate; and
 - (c) the reason for each release.
- (2) In addition to the requirements under subsection (1), for storage outlets with selective withdrawal capabilities, the licence holder must record—
 - (a) the inlet level used for each release of water; and
 - (b) the reason for deciding to release from that particular inlet level.

3 Announced allocations

The licence holder must record details of—

- (a) announced allocation determinations for—
 - (i) high A1 and high A2 priority water allocations; and
 - (ii) medium priority water allocations;
- (b) the date announced allocations are determined; and
- (c) the value of each parameter applied for calculating the announced allocation.

4 Water taken by water users

The licence holder must record the total volume of water, including 'distribution loss' water, taken by each water user for each zone as follows—

- (a) the total volume of water taken each quarter;
- (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.

5 Water diversions

The licence holder must measure and record the daily total volumes of water delivered to—

- (a) Gattonvale Offstream Storage from the pumping station on Bowen River Weir; and
- (b) Bowen River Weir from Gattonvale Offstream Storage.

6 Seasonal water assignment of water allocations

On consent to each seasonal water assignment, the licence holder must record details of the assignment arrangement, including—

- (a) the name of assignee and the assignor
- (b) volume of the assignment
- (c) and location
 - (i) from which it was assigned;
 - (ii) to which it was assigned;
- (d) the effective date of the assignment.

Division 2 Impact of infrastructure operation on natural ecosystems

7 Water quality

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

8 Bank condition

- (1) The licence holder must inspect banks for evidence of collapse and/or erosion identified within ponded areas of each storage listed in attachment 1 of this licence 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.
- (3) Any instances of bank slumping or erosion observed must be investigated to determine if the instability was associated with the nature or operation of the infrastructure.

9 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

10 Reporting requirements

The licence holder must provide—

- (a) quarterly reports;
- (b) annual reports for the previous water year; and
- (c) operational or emergency reports.

Division 1 Quarterly reporting

11 Quarterly report

- (1) The licence holder must submit a quarterly report to the chief executive after the end of each quarter of the water year.
- (2) The report should include for each quarter—
 - (a) storage water levels and stream flows recorded under attachment 3 section 1;
 - (b) releases from storages—all records referred to in attachment 3 section 2;
 - (c) the total volume of water—
 - (i) taken for each zone; and
 - (ii) entitled to be taken for each zone;
 - (d) water quality data recorded under attachment 3 section 7; and
 - (e) a summary of bank condition monitoring and instances of slumping carried out in accordance with attachment 3 section 8.

Division 2 Annual reporting

12 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 attachment 3 section 13;
 - (b) details of the impact of infrastructure operation on natural ecosystems as required under attachment 3 section 14; and
 - (c) a discussion on any issues that arose as a result of operating under the operating procedures prepared in accordance with—
 - (i) for change of rate of releases—attachment 2 section 1(b);

- (ii) for minimum stream flow requirements—attachment 2 section 3(c);
- (iii) for supplying medium and high priority water allocations—the operations manual made under this licence.

13 Water quantity monitoring

The licence holder must include in the annual report—

- (a) a summary of announced allocation determinations, including—
 - (i) an evaluation of the announced allocation procedures and outcomes; and
 - (ii) the date and value for each announced allocation;
- (b) instances where the water level in Eungella Dam was at or below 539.5 m AHD;
- (c) the start and end of any stream flow period;
- (d) details of seasonal water assignments including—
 - (i) the total number of assignments; and
 - (ii) the total volume of water assigned;
- (e) the total annual volume of water taken by each water user, specified by zone for the scheme, 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;
- (f) the total annual volume of water taken by all water users, specified by zone for the scheme, 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;
- (g) all details of changes to the storage and delivery infrastructure or the operation of the storage and infrastructure that may impact on compliance with this licence;
- (h) details of any new monitoring devices used such as equipment to measure stream flow.
- (i) the details and status of any interim programs implemented under condition 5 of this licence.

14 Impact of storage operation on natural ecosystems

The licence holder must include in its annual report—

- (a) a summary of the environmental considerations made by the licence holder in making operational and release decisions under the operating procedures prepared in accordance with—
 - (i) for change of rate of releases—attachment 2 section 1(b);
 - (ii) for minimum stream flow requirements—attachment 2 section 3(c);
 - (iii) for supplying medium and high priority water allocations—the operations manual made under this licence.;
- (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 ponded areas and/or downstream of the storages;
 - (ii) results of any investigations of fish stranding downstream of the storages; 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 water quality issues under subsections (e) to (i) as per the the operating procedures prepared in accordance with—
 - (i) for change of rate of releases—attachment 2 section 1(b);
 - (ii) for minimum stream flow requirements—attachment 2 section 3(c);
 - (iii) for supplying medium and high priority water allocations—the operations manual made under this licence.
- (e) thermal and chemical stratification in the storage;
- (f) contribution of the storage and its management to the quality of water released;
- (g) cumulative effect of successive storages on water quality;
- (h) cyano-bacterial population changes in each storage; and
- (i) any proposed changes to the monitoring program as a result of evaluation of the data.

Division 3 Operational or emergency reporting

15 Operational or emergency reporting³

- (1) The licence holder must—
 - (a) notify the chief executive—
 - (i) upon setting an initial announced allocation or resetting an announced allocation during the water year;
 - (ii) of circumstances and any alternate arrangements where water is unable to be supplied; and
 - (b) provide the chief executive with relevant supporting information used in making any decision under subsection (a)(i).
- (2) The licence holder must notify the chief executive—
 - (a) within one business day of becoming aware of any of the following operational incidents—
 - (i) non-compliance by the licence holder with the operating and supply arrangements in the approved operations manual for this licence;
 - (ii) instances of fish stranding or bank slumping downstream of the water infrastructure to which this licence relates; and
 - (b) of an emergency where, as a result of the emergency, the licence holder cannot comply with the conditions of this licence.
- (3) Further to any notification under subsection (2), the licence holder must provide a report to the chief executive which includes details of—

³ This does not preclude requirements for dam safety under the *Water Act 2000* and any other applicable legislation.

- (a) the incident or emergency;
 - (b) conditions under which the incident or emergency occurred;
 - (c) any responses or activities carried out as a result of the incident or emergency; and
 - (d) 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.
- (4) A report provided under subsection (3) that relates to an operational incident must be provided to the chief executive within five business days of notification of the incident.

Attachment 4 Implementation arrangements

1 Interim arrangements for implementing conditions

- (1) The licence holder may submit a program an interim program to the chief executive for approval, including a timetable of returning to full compliance with the licence and interim arrangements—
 - (a) within six months of the granting of this licence; and
 - (b) at any time where the operating and environmental management rules and monitoring requirements of this plan would be unsafe to a person or persons.
- (2) Where a program submitted under subsection (1) relates to the Water Monitoring Data Collection Standards, the program must include the accuracy of methods currently used.

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) Following approval of a program by the chief executive, the licence holder must—
 - (a) operate in accordance with the approved program; and
 - (b) publish details of the approved program on their website.

4 Critical water supply arrangements

- (1) The resource operations licence holder may prepare and submit critical water supply arrangements to the chief executive for approval at any time.
- (2) The critical water supply arrangements must—
 - (a) be developed with participation from local government, stakeholders and the community;
 - (b) include triggers for commencement and cessation of the arrangements;
 - (c) include a monitoring and reporting schedule; and
 - (d) be developed taking into consideration the options for facilitating the transfer of water to water accounts held or managed by essential services, industry and basic per capita consumption (excluding water for use outside of the home).
- (3) The chief executive, in assessing the arrangements, may either—
 - (a) request further information;

- (b) approve the critical water supply arrangements with or without conditions; or
 - (c) require the resource operations licence holder to submit revised critical water supply arrangements.
 - (d) The resource operations licence holder must make public on its website the critical water supply arrangements and any conditions, once approved by the chief executive.
- (4) Where the chief executive approves the critical water supply arrangements under this section, the chief executive may amend this licence to give effect to these arrangements.

Attachment 5 Glossary

Term	Definition
AHD	The Australian Height Datum (AHD) adopted by the National Mapping Council of Australia for referencing a level or height back to a standard base level.
AMTD	Adopted middle thread distance
Announced allocation	For water allocations managed under a resource operations licence, announced allocation means a number, expressed as a percentage, which is used to determine the maximum volume of water that may be taken in a water year under the authority of a water allocation.
Assignee	The person or entity to whom an interest or right to water is being transferred (e.g. seasonally assigned).
Assignor	The person or entity that transfers an interest or right in water to an assignee (e.g. a seasonal assignment).
Critical water supply arrangements	During periods of critical water shortage the critical water supply arrangements set out the operating rules by which water will be shared.
Discharge	Discharge is the rate at which a volume of water passes a point in a stream or pipeline per unit of time. This could be measured in litres per second (L/s), cubic metres per second (m ³ /s or cumecs) or in megalitres per day (ML/day).
Distribution loss	Water that is 'lost' when delivering water for water allocations in reticulated areas via constructed infrastructure through processes such as (but not limited to) evaporation, seepage, pipeline leakage, accidental loss through temporary pipe failure, loss through pressure relief systems, scouring and pigging.
Emergency	An emergency includes an occurrence that, by nature of its severity, extent or timing, might be regarded as an emergency (e.g. contamination of a water supply, structural damage to infrastructure or a danger to human health).
Fish stranding	Fish stranding means when fish are stranded or left out of the water on the bed or banks of a watercourse, on infrastructure such as spillways and causeways or left isolated in small and/or shallow pools, from which they cannot return to deeper water. This also applies to other aquatic species such as platypus, turtles and any rare or threatened species.
Inlet	Infrastructure comprised of an entrance channel, intake structure, and gate or valve, which allow for water to be taken from the storage and discharged into the watercourse downstream of the storage.
Location	For a water allocation, location means the zone from which water under the water allocation can be taken.
Megalitre (ML)	One million litres
Ponded area	Area of inundation at full supply level of storage.
Quarter or quarterly	Three monthly intervals commencing at the start of the water year.
Stream flow	Includes flow of water resulting from tributary inflows but does not include releases of supplemented water.
Water user	Water user means the holder of a valid water entitlement.
Water year	The water year for water managed under the Water Plan (Burdekin Basin) 2007 is the 12 month period beginning 1 July and ending 30 June.
Zone	A geographic location defined by a reach of a watercourse. Zones are defined in the Water Plan (Burdekin Basin) 2007.