

Resource Operations Licence

Water Act 2000



Name of licence

Barker Barambah Water Supply Scheme Resource Operations Licence

Holder

Sunwater Limited

Water plan

The licence relates to the Water Plan (Burnett Basin) 2014.

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 watercourses listed in Table 1 for the distribution of supplemented water, including sections of tributaries where supplemented water is accessible.

Table 1 – Use of watercourses for distribution

Watercourse	Description
Barker Creek	Extending from the confluence of Barker Creek and Barambah Creek (AMTD 0 km) upstream to the ponded limits of Bjelke-Petersen Dam (AMTD 38.2 km).
Barambah Creek	At AMTD 85km to the ponded limits of Francis Weir (AMTD 189.5 km).

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 those 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 condition 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.
- 4.4. The licence holder must ensure that the transfer of data and reporting are consistent with the Water Monitoring Data Reporting Standards¹.

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 Attachment 3.
- 5.2. Seasonal water assignment of a water allocation may only occur in accordance with the rules in Attachment 4.
- 5.3. The licence holder is required to collect and make publicly available through an industry accepted digital channel, updated at least monthly, details of each seasonal water assignment managed under this licence, including the sale price, the volume of water assigned and the location of where the water was assigned to and from.
- 5.4. The licence holder must provide the chief executive information about seasonal water assignments as directed by the chief executive within the stated time upon request¹.

This Resource Operations Licence is subject to the conditions attached.

Commencement of licence

The licence took effect on 18 November 2005.

Granted on 1 June 2007.

Amended under section 186 of the *Water Act 2000* on 10 January 2022.

Jarrold Cowley-Grimmond
Executive Director, Divisional Support

¹ The Water Monitoring Data Collection Standards and the Water Monitoring Data Reporting Standards can be accessed online at www.business.qld.gov.au

Attachment 1 Infrastructure details for Barker Barambah Water Supply Scheme

Table 1 – Bjelke-Petersen Dam—Barker Creek AMTD 1.3 km

Description of water infrastructure	
Main embankment	Earth and rockfill dam
Full supply level	EL 307.3 m AHD
Saddle dam(s)	1
Fabridams	Nil
Gates	Nil
Storage volume and surface area	
Full supply volume	134 900 ML
Dead storage volume	1000 ML
Storage curves/tables	Drawing no: 213617A
Spillway arrangement	
Description of works	Ogee crest of mass concrete flanked by converging side walls, with a curved approach channel.
Spillway level	EL 307.3 m AHD.
Spillway width	80 m
Discharge characteristics	HYDSYS Rating Table #90 for GS 136210A
River inlet/outlet works	
Description of works	Outlet works consisting of a reinforced concrete inlet tower which is connected to a 2.4 m diameter reinforced concrete diversion tunnel. There are three outlets: a single 900 mm diameter offtake for the Redgate pipeline; and two 920 mm diameter outlets which discharge to Barker Creek controlled by 900 mm diameter cone dispersion valves.
Multilevel inlet	Inlet works consist of a reinforced concrete inlet tower with trash screens and a baulk arrangement that permits control over the level from which the water is drawn. A drop inlet bulkhead gate that is controlled by a hoist provides shut off.
Cease to flow level	Base of the inlet tower: EL 287 m AHD.
Discharge characteristics	The estimated maximum discharge capacity of the river outlet is 400 ML/day. The Redgate pipeline outlet has a maximum discharge of 78 ML/day.
Fish transfer system	
Description of works	Nil

Table 2 – Joe Sippel Weir—Barambah Creek AMTD 171.8 km

Description of water infrastructure	
Main embankment	Weir
Full supply level	EL 295 m AHD
Saddle dam(s)	Nil
Fabridams	Nil
Gates	Nil
Storage volume and surface area	
Full supply volume	710 ML
Dead storage volume	96 ML
Storage curves/tables	Drawing no: A3-55954A
Spillway arrangement	
Description of works	Top of sheet piling weir
Spillway level	EL 295 m AHD
Spillway width	36.34 m
Discharge characteristics	HYDSYS Rating table #90 for GS 136215A
River inlet/outlet works	
Description of works	Outlet works consist of a 450 mm diameter outlet. Flow control is provided by a single 450 mm butterfly valve.
Multi-level inlet	Single level offtake: Inlet works consist of a reinforced concrete inlet chute provided with a trash screen and shut off facility by an aluminium drop board. There is also an offtake location in the backwater of the Joe Sippel Weir that is connected to the Upper Redgate pipeline.
Cease to flow level	Invert of outlet EL 291.32 m AHD corresponding to a storage volume of 96 ML.
Discharge characteristics	The maximum discharge of the outlet is estimated to be 75 ML/day.
Fish transfer system	
Description of works	Nil

Table 3 – Silverleaf Weir—Barambah Creek AMTD 120.4 km

Description of water infrastructure	
Main embankment	Weir
Full supply level	EL 264.26 m AHD
Saddle dam(s)	Nil
Fabridams	Nil
Gates	Nil
Storage volume and surface area	
Full supply volume	580 ML
Dead storage volume	26 ML
Storage curves/tables	Drawing no: A3-110875 and A3-110876
Spillway arrangement	
Description of works	Full width timber, earth and rock weir
Spillway level	Crest EL 264.26 m AHD
Spillway width	31.09 m
Discharge characteristics	HYDSYS rating table #1 for GS 136205A
River inlet/outlet works	
Description of works	A 1000 mm diameter outlet. Control is provided by a 750 mm × 750 mm slide gate.
Multi-level inlet	None
Cease to flow level	EL 261.84 m AHD. Storage capacity 174 ML.
Discharge characteristics	The maximum discharge capacity of the river outlet is estimated to be 346 ML/day.
Fish transfer system	
Description of works	Nil

Attachment 2 Environmental management rules

1 Quality of water released

When making a release from water infrastructure that incorporates multilevel inlets, the licence holder must draw water from the inlet that optimises the quality of water released.

2 Environmental releases

- (1) For each day from 1 July to 31 August, the licence holder must release water from Silverleaf Weir to maintain a daily flow at Stonelands gauging station of 5ML or more if—
 - (a) the combined daily flow at West Barambah gauging station and Glenmore gauging station is 10ML or more; and
 - (b) the daily flow at Ban Ban gauging station is 0ML; and
 - (c) the announced allocation percentage for the medium priority water allocations is greater than 5 per cent.
- (2) For each day from 1 September to 31 December, the licence holder must release water from Silverleaf Weir to maintain a daily flow at Stonelands gauging station of—
 - (a) if the combined daily flow at West Barambah gauging station and Glenmore gauging station is 10ML or more but less than 15ML—5ML; or
 - (b) if the combined daily flow at West Barambah gauging station and Glenmore gauging station is 15ML or more—the lesser of two-thirds of the combined daily flow at the gauging stations and 50ML.
- (3) However, subsection (2) does not apply if—
 - (a) the daily flow at Ban Ban gauging station is 50ML or more; or
 - (b) the announced allocation percentage for the medium priority water allocations is 5 per cent or less.

3 Change in rate of release

- (1) The licence holder must prepare and maintain operating procedures for Bjelke-Petersen Dam, Silverleaf Weir and Joe Sippel Weir.
- (2) The operating procedures must ensure that any increase or decrease in the rate of release of water from the storages occurs incrementally to minimise the occurrence of adverse environmental impacts.

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 in accordance with Attachment 3, Table 1—

- (a) record storage water level and volume, daily inflow and flow data; and
- (b) record continuous time series height and flow data for tailwater flows.

Table 1 – Locations where continuous time series height and volume data and daily flow data are required

Location	Gauging Station Site Identification	AMTD km	Water level and volume data	Daily flow data
Ficks Crossing	GS 136212A	141.5		✓
Stonelands	GS 136206A	90.2		✓
Silverleaf Weir headwater	GS 136205A	120.4	✓	
Silverleaf Weir tailwater	GS 136214A	120.3		✓
Bjelke-Petersen Dam headwater	GS 136210A	1.4	✓	
Bjelke-Petersen Dam tailwater	GS 136211A²	1.0		✓
Joe Sippel Weir headwater	GS 136215A	171.8	✓	
Joe Sippel Weir Tailwater	GS 136216A	171.7		✓
Joe Sippel Weir (Redgate Pipeline Outlet)	GS 136217A	0.0		✓

2 Releases from storages

The licence holder must record for each release of water from storages mentioned in Attachment 1—

- (a) the daily volume released; and
- (b) the release rate, and for any change in release rate—
 - (i) the date and time of the change;
 - (ii) the new release rate; and
 - (iii) the reason for each release and the component volumes³

² This gauging station only measures release water. Total tailwater discharge will need to be calculated from headwater discharge data and any releases.

³ Component volumes comprise of the following;

- passing flows under the environmental rules in Attachment 2.
- volume released for water supply in the storage's local supply area;
- an estimate of the volume released to meet transmission and operating losses in the storage's local supply area;
- volume released to maintain the water level in the next downstream storage;
- volume released through fishways;
- total volume released from the storage.

- (c) for each release; and
- (d) for storages with a multilevel outlet, the water level from which the release was made.

3 Announced allocations

The licence holder must record details—

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

4 Transfer of water between water years

The licence holder must record details of the total volume of water—

- (a) carried over to the current water year from the previous water year; and
- (b) brought forward to the current water year from the next water year.

5 Water taken by water users

The licence holder must record for 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; and
- (d) the basis for determining the total volume of water entitled to be taken, including adjustments for volumes moved into or out of the water year and seasonal water assignments.

6 Seasonal water assignment of a water allocation

The licence holder upon consent to a seasonal water assignment must record details of seasonal water assignment arrangements, including—

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

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 storages listed in Attachment 1.

8 Bank condition

- (1) The licence holder must inspect banks for evidence of collapse and/or erosion within the ponded areas and downstream of each storage listed in Attachment 1, 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 each storage means the distance of influence of infrastructure operations.

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 infrastructure listed in Attachment 1 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 every water year.
- (2) The quarterly report must include—
 - (a) verified stream flow, storage inflow and water level as required under section 1;
 - (b) releases from storages as required under section 2;
 - (c) water quality as required under section 7; and
 - (d) a summary of bank condition monitoring and instances of slumping carried out in accordance with 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 each water year.
- (2) The annual report must include—
 - (a) water quantity monitoring results required under section 13;
 - (b) details of the impact of storage operation on natural ecosystems as required under section 14;
 - (c) a discussion on any issues that arose as a result of the implementation and application of the rules and requirements of this licence; and
 - (d) a summary of sale price disclosure information and other seasonal water assignment information as per Attachment 3, Part 1, Division 1(6).

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) details of seasonal water assignments, including—
 - (i) the total number of seasonal water assignments; and
 - (ii) the total volume of water seasonally assigned;
- (c) for the water year, a summary of water taken by all water users, specified by zone, as follows—
 - (i) the total volume of supplemented water taken;
 - (ii) the total volume of supplemented water entitled to be taken; and
 - (iii) the basis for determining the volume of water entitled to be taken;
- (d) for the water year, the total annual volume of water taken by each water user, specified by zone, as follows—
 - (i) the total volume of water taken for each zone;
 - (ii) the total volume entitled to be taken for each zone; and
 - (iii) the basis for determining the total volume of water entitled to be taken;
- (e) all details of changes to storages and delivery infrastructure or the operation of storages and delivery infrastructure that may impact on compliance with rules and requirements of this licence;
- (f) details of any new monitoring devices used, such as equipment to measure stream flow; and
- (g) a discussion on any other issues that arose as a result of the implementation and application of the rules and requirements in this licence.

14 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 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 following water quality issues—
 - (i) water quality in each storage;
 - (ii) thermal and chemical stratification in the storage;
 - (iii) the impact of the storage and its management on the quality of water released;
 - (iv) cumulative effect of successive storages on water quality;
 - (v) cyano-bacterial population changes in response to stratification in the storage; and
 - (vi) 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 reporting⁴

- (1) 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 conditions of this licence;
 - (ii) instances when a waterhole is drawn down 0.5 m below cease to flow level;
 - (iii) instances of fish stranding, cyanobacterial growth or bank slumping within the ponded areas or downstream of the water infrastructure to which this licence relates; and
 - (iv) a decision being made to introduce a reduced full supply level under section 399B of the *Water Supply (Safety and Reliability) Act 2008*;
 - (b) of an emergency where, as a result of the emergency, the licence holder cannot comply with the conditions of the licence.
- (2) The licence holder must provide to the chief executive upon request, and within the timeframe requested, a report which includes details of—

⁴ This does not preclude requirements for dam safety under the *Water Supply (Safety and Reliability) Act 2008*, *Water Act 2000* and any other applicable legislation.

- (a) the incident or emergency;
 - (b) the 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.
- (3) The licence holder must—
- (a) notify the chief executive within one business day—
 - (i) upon setting an initial announced allocation or resetting an announced allocation during the water year; and
 - (ii) with details of any arrangements for addressing circumstances where they are unable to supply water allocations;
 - (b) provide the chief executive with relevant supporting information used in making any decision under subsection (a)(i) and (ii).
- (4) The licence holder must provide the chief executive within 10 business days of cessation of take, a report of supplemented water being taken through an unsupplemented water user's water meter. The licence holder must report the meter readings at the start and finish of the taking of water and the approved quantities of supplemented water taken.

Attachment 4 Seasonal Water Assignment Rules

1 Seasonal water assignment rules

- (1) The holder of a water allocation may enter into an arrangement for a seasonal water assignment of a water allocation under section 61 of the Water Regulation 2016 only if the total water use in a water year for each zone does not exceed the allowable water use volumes in Table 1 and Table 2 for each zone or priority group.
- (2) Water supplied under a seasonal assignment may be used for any purpose.
- (3) Despite subsection (1), the resource holder of a water allocation may approve a seasonal water assignment of high priority water allocation into zone HB—
 - (a) if the provisional allocation percentage for the Barker Barambah medium priority water allocation is 0%;
 - (b) if the total water use of high priority water allocation in zone HB in a water year does not exceed 10 ML; and
 - (c) the level for Silverleaf Weir is at or above the nominal operating level as stated in Table 3 below.

Table 1 - Permitted allowable water use volume of high priority water allocations

Zones	HB	HZ	HC	HD	HE	JA
Minimum allowable water use (ML)	0	0	450	1,786	0	0
Maximum allowable water use (ML)	0	0	450	1,786	0	0

Table 2 – Permitted allowable water use volume of medium priority water allocations

Zones	HB	HZ	HC	HD	HE	JA
Minimum allowable water use (ML)	9,633	4,953	6,147	777	4,343	24
Maximum allowable water use (ML)	11,002	6,659	8,662	2,577	7,040	2,721
Minimum allowable water use (ML) for combined zones	9,633	4,953	6,147	777	5,314	
Maximum allowable water use (ML) for combined zones	16,661		8,662	2,577	7,314	
	11,002	15,321				

Table 3 – Operating level of Silverleaf Weir

Storage	Nominal operating level (m AHD)	Period
Silverleaf Weir	263.25	April to September
	263.5	October to March

Glossary

Term	Definition
AHD	The Australian Height Datum, which references a level or height to a standard base level.
AMTD	Adopted middle thread distance is the distance in kilometres, measured along the middle of the watercourse, that a specific point in the watercourse is from the watercourse's mouth; or—if the watercourse is not a main watercourse—the watercourse's confluence with its main watercourse.
Announced allocation percentage	For high or medium water allocations manage under this licence—the percentage used to calculate the maximum volume of water that may be supplied in a water year to water allocation holders in the relevant priority group.
Assignee	The person or entity to whom an interest or right to water is being transferred – for example, seasonally assigned.
Assignor	The person or entity who transfers an interest or right in water to an assignee – for example, a seasonal assignment.
Cease to flow level	For a waterhole, the level at which water stops flowing from a waterhole over its downstream control.
Confluence	The point where two or more watercourses meet.
Cyanobacteria	Also known as blue green algae. Naturally occurring microscopic, primitive photosynthetic bacteria.
Dead storage volume	For a storage, means the dead storage volume stated in the infrastructure details for the storage in Attachment 1.
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 meters per second (m ³ /s) or in megalitres per day (ML/day).
EL	Elevation level.
Fish stranding	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 and turtles.
Full supply volume	For a storage, means the full supply volume of the storage stated in the infrastructure details for the storage in Attachment 1.
Inlet	Infrastructure comprised of an entrance channel, intake structure, and gate or valve which allow for water to be taken from the ponded area of a dam or weir and discharged via an outlet into the watercourse downstream of the storage.
Licence holder	The holder of the resource operations licence for the Barker Barambah Water Supply Scheme.
Location	For a water allocation, means the zone from which water under the water allocation can be taken.
Megalitre (ML)	One million litres.
Multi-level inlet	An inlet arrangement on a dam or weir that allows stored water to be released downstream from selected levels below the stored water surface.
Outlet	An arrangement on a dam or weir that allows stored water to be released downstream.
Ponded area	Area of inundation at full supply level of a storage.
Priority group	A grouping of water allocations for taking supplemented water from a water supply scheme with the same Water Allocation Security Objective (WASO) as defined in the Water Plan (Burnett Basin) 2014.
Release	Water from a dam or weir that passes downstream from the dam or weir through the dam or weir outlet works.
Storage Curve	For a storage, means the drawing, showing the volume of water in the storage for a range of water levels, stated in Attachment 1 for the storage.
Stream flow	The total daily flow in megalitres measured at a given point along a watercourse. This includes both natural stream flow and water released from an upstream storage, which contributes to flow at that point.
Supplemented water	Water supplied under a resource operations licence or other authority to operate water infrastructure.
Tailwater	The flow of water immediately downstream of a dam or weir. Tailwater includes all water passing the infrastructure – for example, controlled releases and uncontrolled overflows.
Unsupplemented water	Water that is not supplemented water.
Waterhole	A part of a watercourse that contains water after the watercourse ceases to flow, other than a part of a watercourse that is within the storage area of a dam on the watercourse.
Water user	The holder of a valid water entitlement.
Zone	A geographic location defined by a reach of a watercourse. Zones are for defining the location of a water allocation and operational arrangements under an operations manual. Zones are defined in the Water Plan (Burnett Basin) 2014.