

Chinchilla Weir Water Supply Scheme

Operations Manual

February 2019

Water Plan (Condamine and Balonne) 2019

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Chapter 1 Preliminary

1 Short title

- (1) This operations manual may be cited as the Chinchilla Weir Water Supply Scheme Resource Operations Licence Operations Manual.
- (2) Reference in this document to 'this manual' means the Chinchilla Weir Water Supply Scheme Operations Manual for the Resource Operations Licence.

2 Interpretation of words used in this manual

- (1) The dictionary in attachment 1 defines particular words used in this manual.
- (2) References to licence holder in this manual are taken to mean the resource operations licence holder.

3 Water supply scheme

The extent of the Chinchilla Weir Water Supply Scheme within the Condamine and Balonne plan area is shown on the map in attachment 2.

Chapter 2 Operating rules

4 Operating levels of storage

- (1) The minimum operating level for Chinchilla Weir is EL 287.51 m AHD.
- (2) The licence holder must not release or supply water from Chinchilla Weir if the water level is at or below its minimum operating level.

5 Use of waterholes

A waterhole may be drawn down to 0.5 metres below its natural cease-to-flow level to allow water to be taken under a water allocation if the water released by the licence holder will replace the water drawn down in the waterhole and is released prior to the time of waterhole draw down.

6 Supply of water

- (1) Where the scheme water level in Chinchilla Weir is—
 - (a) greater than or equal to EL 294.39 m AHD—the licence holder may make releases from Chinchilla Weir to supply water allocations in zones CBS-02, CBS-03 and CBS-04; and
 - (b) less than EL 294.39 m AHD and greater than or equal to EL 292.71 m AHD—the licence holder may make releases from Chinchilla Weir to supply water allocations located in zone CBS-02.
- (2) Medium priority water allocation holders in zone CBS-01 must not take water when the scheme water level in Chinchilla Weir is less than EL 292.71 m AHD.

Chapter 3 Water sharing rules

Part 1 Scheme water

7 Application of part 1

This part details water sharing rules that apply to scheme water.

8 Definition for part 1

In this part—

stream flow period, for a zone, means a period of time that starts and ends at such time that the licence holder notifies under section 11.

Division 1 Announced allocations

9 Announced allocations

(1) The licence holder must—

- (a) determine an announced allocation for water allocations belonging to the high priority and medium priority groups to take effect on the first day of each water year;
- (b) following the commencement of a water year—
 - (i) if the announced allocation percentage is less than 100 percent—recalculate the announced allocation to take effect no later than five business days following the first day of every month; and
 - (ii) reset the announced allocation—if a recalculation indicates that the announced allocation would—
 - (A) increase by five or more percentage points; or
 - (B) increase to 100 percent;
- (c) within five business days of setting or resetting the announced allocation, publish details of the announced allocation, including the parameters used in its determination; and
- (d) not reduce the announced allocation during the water year.

(2) The announced allocation—

- (a) must be rounded to the nearest percent;
- (b) must not be greater than 100 percent; and
- (c) may be set for a period less than 12 months.

10 Calculating announced allocations

(1) The announced allocation for high priority water allocations must be—

- (a) when the announced allocation for medium priority water allocations (AA_{MP}) is greater than zero percent—100 percent; or
- (b) when the announced allocation for medium priority water allocations (AA_{MP}) is zero percent—determined using the following formula—

$$AA_{HP} = 100 \times \frac{(UV + DIV)}{HPA}$$

(2) The announced allocation for medium priority water allocations must be determined using the following formula—

$$AA_{MP} = 100 \times \frac{(RV + DIV)}{MPA}$$

(3) The parameters used in the formulae in this section are defined in table 1.

Table 1 Announced allocation parameters

Parameter	Description
AA_{HP}	The announced allocation for water allocations belonging to the high priority group (%).
AA_{MP}	The announced allocation for water allocations belonging to the medium priority group (%).
HPA	The sum of the nominal volumes for all water allocations belonging to the high priority group (ML).
MPA	The sum of the nominal volumes for all water allocations belonging to the medium priority group (ML).
RV	Resource volume—the volume of water within the scheme water account available for medium priority allocations calculated using an assumed combined seepage and evaporation loss of 15 ML/day, average transmission losses of 50 percent to downstream users and high priority demands until the storage reaches the high priority reserve. Refer to table 2 for resource volumes used.
UV	Useable volume—the volume of water available for determining the announced allocation percentages for water allocations. This volume equates to the volume of water within the scheme water account available in Chinchilla Weir minus the operating and storage losses and must be determined as follows— $UV = (CV - MOV - SL)$ If $UV < 0$ then $UV = 0$ Where— CV means the current scheme volume of Chinchilla Weir. MOV means the minimum operating volume of Chinchilla Weir of 120 ML which equates to EL 287.51 m AHD. SL means the projected storage loss from Chinchilla Weir associated with the scheme volume calculated using an assumed combined seepage and evaporation loss of 15 ML/day, average transmission losses of 50 percent to downstream high priority users and high priority demands until the storage reaches the high priority reserve.
DIV	Diverted volume—the total volume of water taken (ML) under all water allocations in a water year in the water supply scheme up to the time of the recalculation of the announced allocation, less any water taken during a stream flow period notified under section 11.

Table 2 Resource volumes

Month	Type	Volumes (ML)												
July	CV	3250	3830	4440	5038	5669	6586	7907	9468	9780				
	RV	0	25	74	116	182	480	1099	1912	2062				
August	CV		3250	3860	4458	5090	6006	7328	8889	9780				
	RV		0	49	91	158	455	1075	1887	2319				
September	CV			3250	3848	4480	5396	6718	8279	9641	9780			
	RV			0	42	109	406	1026	1838	2496	2550			
October	CV				3250	3882	4798	6120	7681	9043	9780			
	RV				0	67	364	984	1796	2454	2742			
November	CV					3250	4166	5488	7049	8411	9484	9780		

Month	Type	Volumes (ML)													
	RV					0	298	917	1730	2388	2808	2906			
December	CV						3250	4571	6133	7495	8568	9497	9780		
	RV						0	620	1432	2090	2510	2818	2883		
January	CV							3250	4811	6174	7246	8176	8943	9523	9780
	RV							0	812	1471	1891	2199	2374	2402	2658
February	CV								3250	4612	5685	6614	7382	7962	9780
	RV								0	658	1078	1386	1562	1590	3408
March	CV									3250	4323	5252	6019	6600	9780
	RV									0	420	728	903	931	4112
April	CV										3250	4179	4947	5527	9780
	RV										0	308	483	511	4764
May	CV											3250	4017	4598	9780
	RV											0	175	203	5385
June	CV												3250	3830	9780
	RV												0	28	5978

Division 2 Stream flow periods

11 Notification of a stream flow period

The licence holder must notify water allocation holders to which a stream flow period applies, of—

- (a) the start and end of the stream flow period;
- (b) the zones to which the period relates;
- (c) the entitlements that the period relates to; and
- (d) the conditions under which the water may be taken.

12 Stream flow period

- (1) The licence holder may start a stream flow period for a zone whenever the following requirements for that zone are being met—
 - (a) for zone CBS-01 whenever—
 - (i) the scheme water level in Chinchilla Weir is at full supply level or the weir is overflowing; and
 - (ii) the natural flow at Chinchilla gauging station on the Condamine River (GS 422308C) AMTD 696.7 km is—
 - (A) greater than 122 ML/day; and
 - (B) less than 600 ML/day; and
 - (b) for zone CBS-02 whenever—
 - (i) the Condamine township weir (Condamine River at AMTD 613.1 km) is full or is likely to fill; and
 - (ii) the natural flow at Chinchilla gauging station on the Condamine River (GS 422308C) AMTD 696.7 km is—
 - (A) greater than 122 ML/day; and
 - (B) less than 600 ML/day; and

- (c) for zones CBS-03 and CBS-04 whenever—
 - (i) the Condamine township weir (Condamine River at AMTD 613.1 km) is full or is likely to fill; and
 - (ii) the natural flow at Bedarra gauging station on the Condamine River (GS 422344A) AMTD 659.0 km is—
 - (A) greater than 102 ML/day; and
 - (B) less than 600 ML/day.
- (2) The licence holder must end a stream flow period for a zone whenever any of the requirements in subsection (1) for that zone are no longer being met.

Division 3 Taking water under a water allocation

13 Taking water under a water allocation

- (1) The total volume of water taken under a water allocation in a water year must not exceed the nominal volume of the allocation.
- (2) The volume of water taken under a water allocation in a water year, other than water made available by notification during a stream flow period, must not exceed the nominal volume of the allocation multiplied by the announced allocation and divided by 100.

Part 2 Accounting for treated CSG water

14 Application of part 2

This part applies to treated CSG water discharged into Chinchilla Weir, where treated CSG water means water produced during the extraction of gas from coal seams, which is treated and delivered by the Kenya to Chinchilla Weir Pipeline for beneficial use in the Chinchilla Weir Water Supply Scheme.

15 Storage accounts for the delivery of treated CSG water

- (1) The licence holder must—
 - (a) establish a treated CSG water account; and
 - (b) establish a scheme water account.
- (2) All treated CSG water discharged into Chinchilla Weir must be credited to the account established under subsection (1)(a).
- (3) The treated CSG water account must be debited for all treated CSG water—
 - (a) taken; and
 - (b) any losses associated with the storage and supply of treated CSG water.
- (4) The minimum volume of water that may be held in the treated CSG water account is zero megalitres.
- (5) The maximum volume of water that may be held in the treated CSG water account is the full supply volume of Chinchilla Weir minus the scheme volume.
- (6) When the Chinchilla Weir spills, the volume spilt must be debited from the treated CSG water account first until the balance of the treated CSG water account is zero megalitres.

16 Estimation process for the treated CSG water account

- (1) The licence holder must estimate the volume of treated CSG water held in the treated CSG water account—
 - (a) on each business day; and

(b) using the following formula—

$$CSGA_{New\ bal} = CSGA_{Prev\ bal} + INP_{CSG} - SL_{CSG} - OP_{CSG\ com} - REL_{CSG\ com} - REL_{CSG\ loss} - SPILL_{CSG\ com} - SPILL_{CSG\ loss}$$

(2) The parameters used in the formula in this section are defined in table 3.

Table 3 Parameters used in the estimation process for the treated CSG water account

Parameter	Description
CSGA_{New bal}	The new treated CSG water account balance following the current estimation process.
CSGA_{Prev bal}	The treated CSG water account balance following the last estimation process. The $CSGA_{Rec\ new\ bal}$ determined under section 17 must be used as the $CSGA_{Prev\ bal}$ for the first estimation of the volume in the treated CSG water account following the treated CSG water account reconciliation process.
INP_{CSG}	The input volume of treated CSG water since the last estimation process.
OP_{CSG com}	The volume of treated CSG water for on-pond commitments (based on customer contracts) scheduled to be taken since the last estimation process.
SL_{CSG}	The on-pond volume of seepage and evaporation loss from Chinchilla Weir that is apportioned to the treated CSG water account since the last estimation process. The volume must be calculated as follows— $SL_{CSG} = SL_{Est\ total} \times \left(\frac{CSGA_{Prev\ bal}}{CWV_{Prev\ vol}} \right)$ <p>Where—</p> <p>$SL_{Est\ total}$ means the estimated volume of seepage and evaporation loss from Chinchilla Weir since the last estimate. This volume must be calculated using an assumed combined seepage and evaporation loss of 15 ML/day.</p> <p>$CWV_{Prev\ vol}$ means the Chinchilla Weir volume as recorded at the time of the last estimate.</p>
REL_{CSG com}	The volume of treated CSG water released from Chinchilla Weir for downstream commitments (based on customer contracts) scheduled to be taken since the last estimation process.
REL_{CSG loss}	The volume of treated CSG water released from Chinchilla Weir for downstream transmission losses to deliver downstream commitments of treated CSG water since the last estimation process. The licence holder must estimate this volume using the methodology for determining downstream transmission losses approved by the chief executive.
SPILL_{CSG com}	The volume of treated CSG water that has spilled from Chinchilla Weir for downstream commitments (based on customer contracts) scheduled to be taken since the last estimation process.
SPILL_{CSG loss}	The volume of treated CSG water that has spilled from Chinchilla Weir for downstream transmission losses to deliver downstream commitments of treated CSG water since the last estimation process. The licence holder must estimate this volume using the methodology for determining downstream transmission losses approved by the chief executive.

17 Reconciliation process for the treated CSG water and scheme water accounts

- (1) The licence holder must apply a treated CSG water account reconciliation process at least once every month.
- (2) The treated CSG water account reconciliation process must reconcile the estimated account balance determined under section 16, against the last reconciled account balance.

- (3) The licence holder must reconcile the treated CSG water account using the following formula—

$$CSGA_{Rec\ new\ bal} = CSGA_{Rec\ init\ bal} - \left(\frac{CSGA_{Rec\ init\ bal} \times SL_{Rec\ total}}{SUMA_{Rec\ init\ vol}} \right)$$

- (4) The licence holder must reconcile the scheme water account using the following formula—

$$CWSA_{Rec\ new\ bal} = CWSA_{Rec\ init\ bal} - \left(\frac{CWSA_{Rec\ init\ bal} \times SL_{Rec\ total}}{SUMA_{Rec\ init\ vol}} \right)$$

- (5) The parameters used in the formulae in this section are defined in table 4.

Table 4 Parameters used in the reconciliation process for the treated CSG water and scheme water accounts

Parameter	Description
$CSGA_{Rec\ new\ bal}$	The new treated CSG water account balance.

Parameter	Description	
CSGA_{Rec init bal}	The initial treated CSG water account balance based on inputs and withdrawals but not including storage loss. This balance must be calculated using the following formula— $CSGA_{Rec\ init\ bal} = CSGA_{Rec\ prev\ bal} + \sum INP_{CSG} - REL_{CSG\ total} - SPILL_{CSG\ total} - \sum OP_{CSG\ take}$	
	Parameter Description	
	CSGA_{Rec prev bal}	The treated CSG water account balance following the last reconciliation.
	$\sum INP_{CSG}$	The sum of the input volumes of treated CSG water used in the estimation process since the last reconciliation.
	REL_{CSG total}	The total volume of treated CSG water released from Chinchilla Weir since the last reconciliation. This volume must be calculated using the following formula— $REL_{CSG\ total} = \sum REL_{CSG\ com} + \sum REL_{CSG\ loss}$ <p>Where—</p> <p>$\sum REL_{CSG\ com}$ means the sum of the volumes of treated CSG water released from Chinchilla Weir for downstream commitments used in the estimation process since the last reconciliation.</p> <p>$\sum REL_{CSG\ loss}$ means the sum of the volumes of treated CSG water released from Chinchilla Weir for downstream transmission losses used in the estimation process since the last reconciliation.</p>
	SPILL_{CSG total}	The total volume of treated CSG water that has spilled from Chinchilla Weir since the last reconciliation. This volume must be calculated using the following formula— $SPILL_{CSG\ total} = \sum SPILL_{CSG\ com} + \sum SPILL_{CSG\ loss}$ <p>Where—</p> <p>$\sum SPILL_{CSG\ com}$ means the sum of the volumes of treated CSG water that has spilled from Chinchilla Weir for downstream commitments used in the estimation process since the last reconciliation.</p> <p>$\sum SPILL_{CSG\ loss}$ means the sum of the volumes of treated CSG water that has spilled from Chinchilla Weir for downstream transmission losses used in the estimation process since the last reconciliation.</p>
$\sum OP_{CSG take}$	The sum of on-pond volumes of treated CSG water taken according to meter readings since the last reconciliation.	
CWSA_{Rec init bal}	The initial scheme water account balance based on inputs and withdrawals but not including storage loss. This balance must be calculated using the following formula— $CWSA_{Rec\ init\ Bal} = CWSA_{Rec\ prev\ bal} + \sum INF_{CWS} - \sum REL_{CWS\ total} - \sum OP_{CWS\ take}$ <p>Where—</p> <p>$CWSA_{Rec\ prev\ bal}$ means the scheme water account balance following the last reconciliation.</p> <p>$\sum INF_{CWS}$ means the sum of the volumes of natural inflow into the scheme water account since the last reconciliation. This volume does not include natural inflow accounted for under the pass flow provisions.</p> <p>$\sum REL_{CWS\ total}$ means the sum of the volumes of scheme water released from Chinchilla Weir since the last reconciliation. This volume does not include water released to comply with pass flow provisions.</p> <p>$\sum OP_{CWS\ take}$ means the sum of on-pond volumes of scheme water taken according to meter readings since the last reconciliation.</p>	

Parameter	Description
SUMA_{Rec init vol}	<p>The sum of the initial scheme water account balance and the initial treated CSG water account balance. This volume must be calculated using the following formula—</p> $\mathbf{SUMA_{Rec\ init\ vol} = CSGA_{Rec\ init\ bal} + CWSA_{Rec\ init\ bal}}$
SL_{Rec total}	<p>The total volume of water lost from the storage due to evaporation and seepage since the last reconciliation. This volume is capped at zero and must be calculated using the following formula—</p> $\mathbf{SL_{Rec\ total} = (CSGA_{Rec\ init\ bal} + CWSA_{Rec\ init\ bal}) - CWV}$ <p>Where—</p> <p>CWV means the current storage volume of Chinchilla Weir at the time of undertaking the reconciliation minus the minimum operating volume.</p>

Chapter 4 Seasonal water assignment rules

18 Seasonal water assignment rules

- (1) The licence holder may approve a seasonal water assignment of a volume of water if—
 - (a) the volume made available under the assignment is less than or equal to the unused volume that may be taken under the authority of the water allocation being assigned; and
 - (b) the total water use in a water year for each zone does not exceed the maximum allowable water use volumes in table 5 for each zone.
- (2) In this section—

total water use, for a zone, means the total volume of water taken under all water allocations managed under the resource operations licence within the zone.

Table 5 Maximum allowable water use volumes

Zone	Maximum allowable water use volumes (ML)
CBS-01	4049
CBS-02	61
CBS-03	801
CBS-04	726

Attachment 1 Dictionary

Term	Definition
AHD	The Australian height datum, which references a level or height to a standard base level.
AMTD	Adopted middle thread distance
CSG water licence	The water licence granted under the <i>Water Act 2000</i> for the take of treated CSG water from the Chinchilla Weir Water Supply Scheme [Condamine River (AMTD 743.6 km—AMTD 643.7 km)].
Discharge/discharged	For the purposes of treated CSG water—means ‘released’ as used in an authority for water that has been treated and approved as a resource under the Environmental Protection (Waste Management) Regulation 2000.
Full supply volume	This is the volume in storage that corresponds to the full supply level.
Megalitre (ML)	One million litres.
Natural flow	A flow in the Condamine River resulting from natural inflow.
Natural inflow	Water entering the Chinchilla Weir Water Supply Scheme from upstream of the upstream boundary of the water supply scheme or via precipitation or tributary inflows.
Publish	Means published in a newspaper circulating generally throughout the area or published on the resource operations licence holder’s internet site for the applicable water supply scheme.
Scheme volume	The volume in Chinchilla Weir occupied by scheme water.
Scheme water	The water in the scheme water account which results from natural inflow that is managed on behalf of supplemented water allocation holders. The volume of water in the scheme water account does not include the minimum operating volume of the Chinchilla Weir.
Scheme water level	The estimated water level in Chinchilla Weir that corresponds to the scheme volume at any point in time.
Spills	Means overflows of water across a storage spillway.
Storage inflow derivation technique	A basic quantitative model that uses inflows from gauging stations combined with actual levels in scheme storages to determine the volume of inflow into a water supply scheme.
Stream flow	Includes flow of water resulting from tributary inflows, and does not include release of supplemented water.
Treated CSG water	Water produced during the extraction of gas from coal seams, which is treated and delivered by the Kenya to Chinchilla Weir Pipeline for beneficial use in the Chinchilla Weir Water Supply Scheme.
Water year	The water year is the 12 month period beginning 1 July and ending 30 June.

Attachment 2 Chinchilla Weir Water Supply Scheme map

