

Barron

Mareeba–Dimbulah Water Supply Scheme Operations Manual

June 2017

This publication has been compiled by Water Policy, Department of Natural Resources and Mines.

© State of Queensland, 2017

The Queensland Government supports and encourages the dissemination and exchange of its information. The copyright in this publication is licensed under a Creative Commons Attribution 3.0 Australia (CC BY) licence.

Under this licence you are free, without having to seek our permission, to use this publication in accordance with the licence terms.



You must keep intact the copyright notice and attribute the State of Queensland as the source of the publication.

Note: Some content in this publication may have different licence terms as indicated.

For more information on this licence, visit <http://creativecommons.org/licenses/by/3.0/au/deed.en>

The information contained herein is subject to change without notice. The Queensland Government shall not be liable for technical or other errors or omissions contained herein. The reader/user accepts all risks and responsibility for losses, damages, costs and other consequences resulting directly or indirectly from using this information.

Contents

Chapter 1	Preliminary	1
1	Short title	1
2	Interpretation of words used in this manual	1
3	Water supply scheme.....	1
Chapter 2	Operating rules	2
4	Operating level of storages	2
5	Maximum discharge rates in watercourses.....	2
Chapter 3	Water sharing rules	3
6	Announced allocations	3
7	Carryover for Mareeba–Dimbulah Water Supply Scheme.....	3
8	Taking water under a water allocation	4
9	High priority water allocations	4
10	Medium priority water allocations.....	4
11	Critical water supply arrangements.....	4
12	Commencement and cessation of critical water supply arrangements.....	5
Chapter 4	Seasonal water assignment rules	6
13	Maximum water use	6
14	Seasonal water assignment rules	6
Attachment 1	Dictionary	7
Attachment 2	Announced allocation parameters for supplemented water allocations	8

Chapter 1 Preliminary

1 Short title

- (1) This operations manual may be cited as the Mareeba–Dimbulah Water Supply Scheme Operations Manual.
- (2) Reference in this document to ‘this manual’ means the Mareeba–Dimbulah Water Supply Scheme Operations Manual.

2 Interpretation of words used in this manual

The dictionary in attachment 1 defines particular words used in this manual.

3 Water supply scheme

- (1) The extent of the Mareeba–Dimbulah Water Supply Scheme is defined by the Water Plan (Barron) 2002.
- (2) Each zone for the Mareeba–Dimbulah water Supply Scheme, shown on the map in the Water Plan (Barron) 2002, is a zone for this manual.

Chapter 2 Operating rules

4 Operating level of storages

- (1) The resource operations licence holder may only release or supply water from any storage in the Mareeba–Dimbulah Water Supply Scheme, when the water level in that storage is above the minimum operating level specified in the resource operations licence for the Mareeba–Dimbulah Water Supply Scheme.
- (2) This section does not apply to the release or supply of water in accordance with the critical water supply arrangements outlined in section 11 of this manual.

5 Maximum discharge rates in watercourses

The resource operations licence holder may release water from supplementation works into watercourses at a total rate up to the maximum discharge rate specified for the watercourse in table 1.

Table 1 – Maximum discharge rates

Watercourse	Maximum discharge rate (ML/day)
Tinaroo Creek	25
Granite Creek	250
Nicotine Creek	40
Atherton Creek	25
Cobra Creek	65
Emerald Creek	70
Levison Creek	15
Shanty Creek	75
Brindle Creek	60
Walsh River	340
Eureka Creek	40
Murphys Creek	8
Two Mile Creek	180
Unnamed tributary of Barron River (M18 outfall)	25

Chapter 3 Water sharing rules

6 Announced allocations

- (1) The resource operations licence holder must—
 - (a) determine an announced allocation for each priority group for use in defining the share of water available to be taken under water allocations in that priority group;
 - (b) use the water sharing rules specified in this part, to calculate announced allocations throughout the water year;
 - (c) calculate and set the announced allocation for each priority group on the first day of each water year;
 - (d) recalculate the announced allocation on the first day of every month following the commencement of a water year and reset the announced allocation if a recalculation indicates that the calculated announced allocation would—
 - (i) increase by five or more percentage points; or
 - (ii) increase to 100 per cent;
 - (e) make public details of the announced allocation, including parameters for determining the announced allocation, on the resource operations licence holder's internet site for the Mareeba–Dimbulah Water Supply Scheme, within five business days of—
 - (i) setting an announced allocation under subsection (1)(c); or
 - (ii) the first calendar day of every month when resetting the announced allocation under subsection (1)(d).
 - (f) not reduce the announced allocation during a water year unless water restrictions are imposed in accordance with the critical water supply arrangements in section 11 of this manual.
- (2) The announced allocation must not be greater than 100 per cent.

7 Carryover for Mareeba–Dimbulah Water Supply Scheme

- (1) The resource operations licence holder may, subject to this section, allow a water user to carry over part of the water allocation holder's unused water from one water year to the next water year.
- (2) The total volume of unused water for the scheme that is permitted to be carried over to the next water year must be the lesser of—
 - (a) 25 per cent of the total nominal volume for the scheme; and
 - (b) 97.5 per cent of the total volume of unused water for the scheme at the end of the water year.
- (3) The resource operations licence holder must make public, using the holder's website, the methodology for determining the volume of water permitted to be carried over by each water user in the event that the volume determined in subsection (2)(b) exceeds the volume determined under subsection (2)(a).
- (4) The volume of water that may be carried over by a water user must not be more than 97.5 per cent of the water allocation holder's unused volume at the end of the water year.
- (5) Any volume of water that is carried over into a new water year, and that is unused by the water user at the date of any of the following events, must be deducted from the volume of water available to the water allocation holder—

- (a) after six months into the commencement of the water year;
- (b) when the Tinaroo Falls Dam spills; or
- (c) when the water level in Tinaroo Falls Dam is less than, or equal to 667.0 m AHD.

8 Taking water under a water allocation

- (1) The volume of water taken under a water allocation in a water year must not exceed the nominal volume of the water allocation multiplied by the announced allocation and divided by 100.
- (2) Subsection (1) does not include the volume of water permitted to be carried over into the next water year as specified in section 7 of this manual.

9 High priority water allocations

- (1) The announced allocation for high priority water allocations must be in accordance with the critical water supply arrangements approved by the chief executive.
- (2) Where no critical water supply arrangements have been approved by the chief executive, the stored announced allocation for high priority water allocations must be as follows—
 - (a) 100 per cent where the announced allocation for medium priority water (AA^{MP}) is greater than zero per cent; or
 - (b) if the announced allocation for medium priority water (AA^{MP}) is zero per cent, the resource operations licence holder must determine the announced allocated using the formula—

$$AA^{HP} = 100 \times \left(\frac{UV + IN - TOA - MFV - CO + DIV^{HP}}{HPA} \right)$$

- (3) The parameters used in the announced allocation formula are defined in attachment 2.

10 Medium priority water allocations

- (1) The announced allocation for medium priority water allocations must be in accordance with the critical water supply arrangements approved by the chief executive.
- (2) Where no critical water supply arrangements have been approved by the chief executive, the resource operations licence holder must determine the announced allocation percentage for medium priority water allocations using the following formula—

$$AA^{MP} = 100 \times \left(\frac{UV + IN - (HPA \times AA^{HP}) - RE - TOA - MFV - CO + DIV^{HP} + DIV^{MP}}{MPA} \right)$$

- (3) The parameters used in the announced allocation formula are defined in attachment 2.

11 Critical water supply arrangements

- (1) The resource operations licence holder may prepare and submit critical water supply arrangements, or amendments to existing critical water supply arrangements, to the chief executive for approval any time after commencement of this manual.
- (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) consider 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 critical water sharing arrangements, including any amendments to existing arrangements, may—
- (a) request further information; or
 - (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; or
 - (d) refuse the arrangements.
- (4) 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.
- (5) Where the chief executive approves the critical water supply arrangements under this section, the chief executive must amend this manual in accordance with chapter 2, part 2, division 5, subdivision 4 of the *Water Act 2000*.

12 Commencement and cessation of critical water supply arrangements

- (1) When the commencement triggers in the critical water supply arrangements are met, the critical water supply arrangements are invoked and the relevant sections of this manual cease to apply for the period that the critical water supply arrangements are in place.
- (2) When the cessation triggers in the critical water supply arrangements are met the provisions of this manual apply.

Chapter 4 Seasonal water assignment rules

13 Maximum water use

For this chapter—

- (a) the maximum volume of water that may be used in a zone in a water year for the Mareeba–Dimbulah Water Supply Scheme is the maximum water use volume indicated in table 5 for each zone.
- (b) total water use in a zone is the total volume of water used under water allocations for all priority groups managed by the resource operations licence holder for the zone.

Table 5 – Maximum water use volumes (ML) for the Mareeba–Dimbulah Water Supply Scheme

Zone A	Zone B	Zone C	Zone D	Zone E
15 000	13 500	20 000	No limit	29 500

14 Seasonal water assignment rules

- (1) The resource operations licence holder may approve a seasonal assignment of a volume of water provided that the total water use in a water year for each zone does not exceed the maximum water use volume in table 5 for each zone.
- (2) The resource operations licence holder must not approve a seasonal assignment of a water allocation if the purpose of that water allocation is 'distribution loss'.

Attachment 1 Dictionary

section 2

Term	Definition
AHD	Australian Height Datum, which references a level or height to a standard base level.
Announced allocation	For a water allocation managed under a resource operations licence, 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.
Critical water shortage	When it is anticipated that storage levels in Tinaroo Falls Dam will fall below minimum operating levels within 12 months.
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. For example, megalitres per day (ML/day).
Distribution loss	Water that is 'lost' when delivering water for water allocations via constructed water delivery infrastructure, such as pipelines and open channels, through such processes as evaporation, seepage, pipeline leakage, accidental loss through temporary pipe failure (breaks), loss through pressure relief systems, scouring, pigging. Distribution loss water is not included in, or part of, transmission operation allowance (TOA—as defined in attachment 2).
Megalitre (ML)	One million litres
Water use	Refers to actual consumption of water.
Water year	The period from 1 July to 30 June in the following year.

Attachment 2 Announced allocation parameters for supplemented water allocations

Table 6 – Announced allocation parameters

Term	Definition
AA ^{MP}	Medium priority announced allocated percentage—the percentage of the nominal volume for a medium priority water allocation that may be taken for the water year.
AA ^{HP}	High priority announced allocated percentage—the percentage of the nominal volume for a high priority water allocation that may be taken for the water year.
HPA	High priority water allocations—the total nominal volume of high priority water allocations in the scheme, including the channel losses associated with delivering the high priority allocation.
MPA	Medium priority water allocations—the total nominal volume of medium priority water allocations in the scheme, including the channel losses associated with delivering the medium priority allocation.
UV	Useable volume—the sum of the useable volume of Tinaroo Falls Dam plus the volume stored in weirs minus the storage losses, which is calculated using the following— $UV = \text{sum (UV storage)}$ $UV \text{ storage} = (CV - DSV - SL)$ $UV \text{ storage} = 0 \text{ if } (CV - DSV - SL) \text{ is less than } 0$ Where— UV is the useable volume of Tinaroo Falls Dam plus the volume stored in weirs. CV is the current volume of Tinaroo Falls Dam plus the weirs. DSV is the dead storage volume stored in Tinaroo Falls Dam plus the weirs. SL is the projected storage loss from Tinaroo Falls Dam (calculated using data in attachment 2 table 7) from each storage for the remainder of the water year. The storage loss volume is calculated by using the value for the month in question multiplied by the current surface area of the storage
IN	Inflow—the allowance for inflows used in the announced allocated calculations, which is the value in attachment 2 table 8, for the month in which the announced allocation is set or reset.
RE	Reserve volume—the storage volume set aside to provide future water supply of high priority water allocation. When Tinaroo Falls Dam is greater than 75 per cent full the reserve volume is zero. When Tinaroo Falls Dam is less than or at 75 per cent full, then the RE is 1.2 times the total nominal volume of high priority water allocations.
TOA	Transmission operational allowance—an allowance for the river transmission operations expected to occur in running the system to the end of the water year. TOA varies with the announced allocation for medium priority water allocations. TOA is to be linearly interpolated from attachment 2 table 9.
MFV	Minimum river flow volumes allowance—an allowance for releases from Tinaroo Falls Dam to meet the requirements of the resource operations licence for the Mareeba–Dimbulah Water Supply Scheme. MFV is obtained from attachment 2 table 10.

Term	Definition
DIVHP	Diverted volume, high priority—the volume of high priority water diverted from the system to the time of assessment of the announced allocation.
DIVMP	Diverted volume, medium priority—the volume of medium priority diverted from the system to the time of assessment of the announced allocation.
CO	Carry over—the volume of water carried over from the unused portion of the entitlement at the end of the previous water year. The volume includes provision for storage losses. The CO must be set back to zero once any of the triggers in section 7(5) of this manual occur.

Table 7 – Storage loss for Tinaroo Falls Dam

Month in which announced allocation (AA) is calculated	Storage Loss until the end of the water year (ML)
July	1559
August	1491
September	1395
October	1260
November	1077
December	891
January	708
February	538
March	403
April;	261
May	150
June	66

Table 8 – Inflow allowances

Month	Inflow to Tinaroo Falls Dam (ML)
July	2170
August	2365
September	1830
October	1380
November	880
December	1740
January	3370
February	3720
March	6975
April;	5030
May	5550
June	2345

Table 9 – Transmission and operation allowances

Month in which AA is calculated	Transmission and operation allowance (ML)					
	AA ^{MP} = 0 per cent	AA ^{MP} = 30 per cent	AA ^{MP} = 45 per cent	AA ^{MP} = 60 per cent	AA ^{MP} = 80 per cent	AA ^{MP} = 100 per cent
July	3 204	9 544	12 713	15 883	20 109	24 336
August	2 945	8 650	11 503	14 356	18 160	21 963
September	2 687	7 632	10 105	12 577	15 874	19 170
October	2 351	6 345	8 342	10 339	13 002	15 664
November	2 010	5 053	6 575	8 096	10 125	12 153
December	1 671	4 207	5 475	6 743	8 433	10 124
January	1 384	3 540	4 618	5 695	7 132	8 569
February	1 132	3 097	4 080	5 063	6 373	7 683
March	924	2 762	3 681	4 600	5 826	7 052
April	705	2 480	3 368	4 255	5 438	6 622
May	457	1 852	2 549	3 246	4 176	5 106
June	240	874	1 191	1 508	1 931	2 353

Table 10 – Minimum daily river flow volumes allowance (ML/day)

Month in which AA is calculated	Tinaroo Falls Dam storage volume on first day of the month (ML)						
	438 920	400 000	300 000	200 000	100 000	40 000	0
July	96 685	51 493	31 616	18 900	0	0	0
August	92 577	49 686	30 460	18 900	0	0	0
September	88 468	47 879	29 304	18 900	0	0	0
October	84 360	46 072	28 148	18 900	0	0	0
November	80 252	44 265	26 992	18 900	0	0	0
December	76 143	42 458	25 836	18 900	0	0	0
January	72 035	40 651	24 680	18 900	0	0	0
February	67 927	38 844	23 524	18 900	0	0	0
March	63 818	37 037	22 368	18 900	0	0	0
April	59 710	35 230	21 212	18 900	0	0	0
May	55 601	33 423	20 056	18 900	0	0	0
June	51 493	31 616	18 900	18 900	0	0	0