Operations Manual

Warrill Valley Water Supply Scheme

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1 Preliminary

1.1 Short title

1. This operations manual may be cited as Warrill Valley Water Supply Scheme Operations Manual.
2. Reference in this document to 'this manual' means the Warrill Valley Water Supply Scheme Operations Manual.

1.2 Interpretation of words used in this manual

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

1.3 Water supply scheme

The extent of the Warrill Valley Water Supply Scheme is defined in the Water Plan (Moreton) 2007.

2 Operating rules

2.1 Operating levels for infrastructure

1. The minimum operating levels for the infrastructure in the Warrill Valley Water Supply Scheme are specified in Table 1.
2. The licence holder may release water from any infrastructure if the water level in that infrastructure is above its minimum operating level and the release is necessary –
   a. to supply downstream demand; or
   b. for operational purposes.
3. Despite subsection 2. –
   a. When the water level in Moogerah Dam is at or below EL 138.94 the licence holder must not release water from Moogerah Dam –
      i. to supply medium priority water allocations; and
      ii. to supply 'High Priority C' water allocations in Zone F.

Table 1 - Operating levels of storage infrastructure

Infrastructure	Minimum operating level (m AHD)
Aratula Weir	Not applicable.
Churchbank Weir	EL 35.78
Kents Lagoon Diversion Weir	EL 73.25
Moogerah Dam	Invert of Outlet Works EL 132.85 m AHD. 1,130 ML is cease to flow. 563 ML dead storage after syphoning takes place.
Railway Weir	There is no specific level. The weir is operated between the full supply level and the dead storage level.
Upper Warrill Diversion Weir	EL 115.16
Warrill Creek Diversion Weir	EL 70.43
Warroolaba Creek Diversion Weir	EL 52.00
West Branch Warrill Diversion Weir	EL 42.47

3 Water sharing rules

3.1 Calculating and setting announced allocations

The licence holder must:

1. calculate the announced allocation for each priority group using the water sharing rules for the scheme to take effect on the first day of the water year;
2. after the commencement of a water year:
    a. recalculate the announced allocation at the beginning of each calendar month;
    b. reset the announced allocation no later than 5 Business Days after the first day of the month only if the recalculation indicates that the announced allocation would:
        i. increase by 5 or more percentage points; or
        ii. increase to 100 percent.
3. publish details of the announced allocation, including parameters for determining the announced allocation, on the licence holder's website within 5 Business Days of setting an announced allocation;
4. not reduce the announced allocation during a water year;
5. round the announced allocation to the nearest whole percentage point;
6. not set an announced allocation that is less than zero or greater than 100 percent.

3.2 Announced allocation for medium priority allocations

1. The licence holder must determine the announced allocation for medium priority allocations using the formula and methodology as follows:

a. the announced allocation percentage for medium priority water allocations must be calculated using the following formula:

$$AA_{MP} = \left\{\frac{UV + IN + DIV_{MP} + DIV_{HPC} - (HPCA + RE + TOA)}{MPA}\right\} \times 100$$

2. The parameters used in the announced allocation formula for medium priority allocations are defined in Tables 2 to 6.

3.3 Announced allocation for high priority water allocations

1. The licence holder must determine the announced allocation for 'High Priority C' allocations using the formula and methodology as follows:

   a. 100 per cent when the announced allocation for medium priority water allocations is greater than zero percent; or

   b. when the announced allocation for medium priority group water allocations is zero per cent, the announced allocation percentage for high priority water allocations must be calculated using the following formula:

$$AA_{HPC} = \left\{\frac{UV + DIV_{HPC} - TOA}{HPCA}\right\} \times 100$$

2. The parameters used in the announced allocation formula for 'High Priority C' allocations are defined in Tables 2 to 6.

Table 2 – Announced allocation parameters

Term	Details
UV (ML)	UV (storage) = CV – MOV – SL Usable volume in a storage is the volume in a storage that is available for supplying demand after projected losses and inaccessible volume is accounted for. CV = current volume in a storage. SL = storage loss. The net projected storage loss from for the remainder of the water year. Includes evaporation and seepage, minus direct rainfall onto the storage. Calculated by multiplying the storage loss value for the current month by the surface area of the storage. The storage loss values are shown in Table 3. MOV = minimum operating volume. The volume of water in a storage that cannot be accessed to meet demand under normal operating conditions.
IN (ML)	Inflow – the allowance for inflows used in the resource assessment and includes assumed minimum inflow into Moogerah Dam and assumed minimum tributary inflows into the weirs. The assumed minimum inflow used in the resource assessment for determining the announced allocation is a projected minimum inflow over the duration of the water year. The assumed minimum inflow values used in the resource assessment are shown in Table 4.

Term	Details
RE (ML)	Reserve – the volume set aside for supplying high priority water allocations in the future months beyond the current resource assessment. The reserve amount is shown in Table 5.
TOA (ML)	Transmission and operational allowance – an allowance for the river transmission and operational losses 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 calculated using Table 6.
$HPCA$ (ML)	High Priority C allocation group – the total nominal volume of 'High Priority C' water allocations in the Warrill Valley Water Supply Scheme.
MPA (ML)	Medium priority allocation group – the total nominal volume of medium priority water allocations in the Warrill Valley Water Supply Scheme.
DIV_{HPC} (ML)	Diversion high priority is the volume (in megalitres) of water taken under 'High Priority C' water allocations since the start of the current water year up to the time of assessment of the announced allocation. At the start of the water year $DIV_{HPC} = 0$
DIV_{MP} (ML)	Diversion medium priority is the volume (in megalitres) of water taken under medium priority water allocations since the start of the current water year up to the time of assessment of the announced allocation. At the start of the water year $DIV_{MP} = 0$

Table 3 - Total storage loss depths for the remainder of the water year (mm)

Month in which announced allocation was calculated	Loss depth (mm)
	Moogerah Dam
July	365
August	353
September	312
October	241
November	211
December	182
January	136
February	126
March	126
April	83
May	24
June	24

Table 4 - Assumed minimum inflows for the remainder of the water year (ML)

Month	Inflow volume (ML)
July	2081
August	2081
September	854
October	674
November	507
December	389
January	333
February	278
March	190
April	95
May	46
June	22

Table 5 – High priority reserve (ML)

Month	Reserve volume (ML)
July	3159
August	3659
September	4202
October	4782
November	5243
December	5605
January	5950
February	6486
March	6929
April	7431
May	8042
June	8615

Table 6 – Transmission and operational allowance (ML)

Month in which AA is calculated	Transmission and operational loss allowance						
	AA_{MP} = 0%	AA_{MP} = 25%	AA_{MP} = 30%	AA_{MP} = 40%	AA_{MP} = 60%	AA_{MP} = 80%	AA_{MP} = 100%
July	3 204	6 581	3 369	3 996	5 250	6 504	7 559
August	2 878	5 984	3 067	3 644	4 798	5 952	7 105
September	2 655	5 434	2 781	3 297	4 329	5 362	6 394
October	2 399	4 858	2 484	2 940	3 853	4 766	5 679
November	2 054	4 215	2 158	2 559	3 362	4 164	4 967
December	1 727	3 614	1 853	2 204	2 905	3 606	4 307
January	1 465	3 092	1 587	1 889	2 494	3 098	3 703
February	1 196	2 581	1 327	1 584	2 098	2 612	3 127
March	881	2 036	1 052	1 267	1 696	2 125	2 554
April	550	1 451	758	925	1 260	1 595	1 930
May	318	916	481	592	814	1 036	1 258
June	157	451	237	291	400	509	619

3.4 Alternative water sharing arrangements for high priority water allocations

1. When the announced allocation for high priority allocation holders within the Warrill Valley Water Supply Scheme, as determined under section 3.3, is zero percent, the licence holder may make water available from Moogerah Dam by announcement.

3.5 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 for the water allocation.
2. The total volume of water that may be taken under a water allocation in a water year, other that water made available by announcement in section 3.4, must not exceed the nominal volume of the water allocation multiplied by the announced allocation percentage.

4 Seasonal water assignment rules

4.1 Seasonal water assignments

1. The licence holder may approve a seasonal assignment of a volume of water.
2. Water supplied under a seasonal water assignment may be used for any purpose.

Attachment 1 - Dictionary

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.
Business Day	Means a day that is not: (a) a Saturday or Sunday; or (b) a public holiday or special holiday in Brisbane, Queensland.
EL	Elevation level.
Full supply volume	The specified maximum volume of water within the ponded area of a dam, weir or barrage, which corresponds to the full supply level.
Infrastructure	A dam, weir or other water storage and any associated works for taking or interfering with water in a watercourse, lake or spring.
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, weir or barrage and discharged via an outlet into the watercourse downstream of the storage.
Megalitre (ML)	One million litres.
Minimum operating level	For a dam or weir, is the volume of water within the ponded area of a dam, weir or barrage below which water cannot be released or taken from the infrastructure under normal operating conditions.
Minimum operating volume	The specified minimum volume of water within the ponded area of a dam weir or barrage below which water cannot be released or taken from the infrastructure under normal operating conditions.
Outlet	Means 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 dam, weir or barrage.
Release	Water from a dam or weir that passes downstream from the dam or weir either through the dam or weir outlet works or over the dam spillway.
Release rate	Rate of release of water from a storage facility, for example, a dam or weir.
Water use	Refers to actual take of water.
Water year	For the Warrill Valley Water Supply Scheme, the water year is 1 July to 30 June.