Amendment date: 22 Sept 2017

Water efficiency regulators

Reference no.	Title of measure	Riverine Recovery Project	
	Person undertaking the measure	**South Australia**	
	Short description of measure	The Riverine Recovery Project project will provide a a South Australian Class 9 water access entitlement to the Commonwealth Government. The entitlement can be used for environmental purposes either within or upstream of the South Australian/Victorian border. The entitlement is generated from evaporative savings from returning a number of wetlands to a more natural wetting/drying regime.	
1.	**Confirmation**		
	Capacity of the measure to operate as a supply measure *'Supply measure' is defined in section 7.03 of the Basin Plan to mean 'a measure that operates to increase the quantity of water available to be taken in a set of surface water SDL resource units compared with the quantity available under the benchmark conditions of development'.*		Yes - the Riverine Recovery Project meets the definition of a 'supply measure'.
	Confirmation that the measure entered into or will enter into operation by 30 June 2024 ***Basin Plan 7.12(3)(a)***		Yes - the Riverine Recovery Project will be operational by 30 June 2024.
	Confirmation that the measure is not an 'anticipated measure' ***Basin Plan 7.12(3)(b)*** *'Anticipated measure' is defined in section 7.02 of the Basin Plan to mean 'a measure that is part of the benchmark conditions of development'.*		Yes - it is a new project (not already included in the benchmark conditions of development).
	Confirmation that the proponent state(s)undertaking the measure agree(s) with the template ***Basin Plan 7.12(3)(c)*** *Joint proposals will need the agreement of all proponents*		Confirmed.
2.	**Surface water SDL resource units affected by the measure** ***Basin Plan s 7.12(4)(b)***		
	This measure identifies all surface water resource units in the Southern Basin region as affected units for the purposes of notifying supply measures. The identification of affected units does not constitute an agreement between jurisdictions on apportioning the supply contribution, which will be required in coming months.		
3.	**Details of relevant constraint measures** ***Basin Plan s 7.12(4)(c)***		
	This project is not reliant on other supply or constraint measures for implementation or operation.		
4.	**Date on which the meausure entered into, or will enter into, operation** ***Basin Plan s 7.12(4)(d))***		
	30/06/2024		

5.	**Details of the measure** ***Basin Plan 7.12(4)(a)***

Description of the proposed works

The Yatco Lagoon and the Phase 1 and Phase 2 Wetlands Project elements of the Riverine Recovery Project (RRP) program involve the installation of infrastructure to re-introduce more natural wetting and drying cycles for targeted wetlands to improve ecosystem health and resilience. Implementation of these management regimes results in reduced net evaporative losses. The net evaporative losses at each site are converted to RRP class 9 entitlements. The use of these entitlements forms the SDL adjustment measure.

Water Savings in the form of class 9 entitlements totalling 5.2248 gigalitres (GL), have been transferred to the Commonwealth Government. Additional water savings from finalising Phase 1 and completing Phase 2 wetlands element are anticipated to be around 2.02 GL.

Proposed operating rules for the regulators under full range of hydrological conditions experienced during 1895 to 2009 period.

An evapotranspiration daily Time-series (SWET) daily time-step water balance model for each managed wetland was used to determine the net evaporative savings that result from the specified wetting and drying regime for each managed wetland.

The proposed hydrological regime for each individual wetland is specified as a five-year hydrograph. It is cyclical in nature and includes one or multiple water level draw-downs. Using this hydrograph and the Benchmark time-series of river flow, the SWET model calculates the inflow to the wetland, net losses due to evaporation and rainfall, and the resulting wetland water level.

Details of modelling to assess current and changed hydrology of the system and consequent water savings.

To include the RRP measure in the SDL adjustment model, the volume of net evaporative savings generated should be modelled as an RRP Class 9 entitlement with 100% allocation in every year.

It is not proposed to explicitly model each individual wetland in the SDL adjustment model but to represent the net evaporative savings in MSM-Bigmod by reducing the surface area(s) of the relevant reach(es) to reduce the average annual net evaporation over the modelling period by the volume of RRP class 9 entitlements. This would implement the annual average "evaporative savings" over the modelling period that results from the RRP.

Average net savings modelled in MSM-Bigmod

Instead of explicitly modelling each wetland, outcomes from the SWET model have been averaged over each month. In MSM, total values are used to represent evaporative savings while Bigmod uses values over a number of reaches as per table in below

Month	Bigmod									MSM
	LK6 US	LK6-LK5	LK5-LK4	LK4-LK3	LK3-LK2	LK2-LK1	LK1-Swan Reach	Swan-Mannum PS	Mannum-Murray Bridge	Total
Jan	0.081	0.698	0.033	0.351	0.617	0.588	0.302	0.369	0.004	3.043
Feb	0.125	0.801	0.058	0.643	0.385	0.371	0.224	0.339	0.003	2.950
Mar	0.332	0.943	0.047	0.047	0.426	0.338	0.264	0.377	0.003	2.777
Apr	0.299	0.370	0.018	0.206	0.307	0.369	0.148	0.257	0.001	1.975
May	0.126	0.030	0.005	0.104	0.081	0.087	-0.074	0.062	-0.002	0.419
Jun	0.033	-0.020	-0.001	-0.036	-0.026	-0.041	-0.075	-0.011	-0.001	-0.178
Jul	-0.189	0.037	-0.029	-0.003	-0.188	-0.161	-0.183	0.085	0.000	-0.631
Aug	-0.300	-0.460	-0.018	-0.612	-0.109	-0.339	-0.127	-0.084	0.000	-2.050
Sep	-0.213	-0.134	-0.012	-0.353	-0.404	-0.205	-0.119	-0.414	0.000	-1.854
Oct	0.031	-0.377	-0.024	-0.091	-0.397	-0.281	-0.030	-0.545	0.000	-1.714
Nov	0.017	0.063	-0.019	0.289	0.405	0.023	-0.006	-0.047	0.002	0.728
Dec	0.055	0.027	0.008	0.603	0.905	0.052	0.101	0.047	0.003	1.803

6. Representation of each operating strategy in the MDBA modelling framework

Modelled allocation policies of new entitlements

Reduction of evaporative loss between Lock 6 and Lock 1 has been modelled as per Table 1 and an equivalent amount of environmental entitlements has been created with the following properties:

- When SA Entitlement <100% at 1 July (i.e. less than full Entitlement under cl 88 of the MDBAgreement), the allocated water is limited to be used within SA (i.e. regulator order at the border isnot affected by the RRP environmental allocation. With the reduced evaporation loss, the additionalwater reaches to the lakes);
- When SA Entitlement is <100% at 1 July (i.e. less than full Entitlement under cl 88 of the MDBAgreement), but reaches 100% during the water year, the remaining allocation can be used to meetupstream environmental demands (i.e. regulated order at the border for the remainder of the wateryear may be reduced by the environmental allocation);
- When SA Entitlement is >=100% at 1 July (i.e. full Entitlement under cl 88 of the MDB Agreement),the full allocation can be used to meet upstream environmental demands (i.e. regulated order at theborder is reduced by the environmental allocation).

These conditions are based on intended revisions to the SA Water Allocation Plan with some mechanisms to report and account its water use.