



# **Licence WU67 Monthly Environmental Flow Report June 2022**

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## Document management

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### Document summary

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## 1. Introduction

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Icon Water holds a Licence to Take Water under the Water Resources Act 2007 – Licence Number WU67.

Under Licence Number WU67 clause C1, it is a requirement to provide the following information to the Environment Protection Authority (EPA) by the 15<sup>th</sup> day of each month.

## 2. Compliance Analysis and Operational Interactions

**Table 1 - Notes relating to the reporting month Environmental Flow releases**

Reservoir	Notes
Corin	Corin Dam spilled throughout June. The bi-monthly riffle release was achieved by spillway flows. Releases were at licence requirements throughout June.
Bendora	Bendora Dam spilled throughout June. The bi-monthly riffle release was achieved by spillway flows. Releases were at licence requirements throughout June.
Cotter	Cotter Dam spilled throughout June. Releases were at licence requirements throughout June.
Googong	Googong Dam spilled throughout June. Releases were at licence requirements throughout June.

**Table 2 – Notes relating to abstraction from Murrumbidgee River**

Mt MacDonald river gauge	Not applicable, natural river flows.
Murrumbidgee abstraction	There was no Murrumbidgee River abstraction for consumption in June.
Murrumbidgee To Cotter Eflow	M2C did not operate in June.
Murrumbidgee to Googong	M2G did not operate in June.
Angle Crossing river gauge	Not applicable, natural river flows.

### 3. Environmental Release Data

The environmental flow release requirements for the current month (a combination of requirements) are detailed in Table 3.

**Table 3 – Current month Environmental Flow releases (Total for month in ML)**

	Corin	Bendora	Cotter	Googong
Previous month's shortfall (-) or Excess (+) *	139.5	220.1		
Monthly 75% of the 80 <sup>th</sup> %tile ML #	1395	2201		
Additional release required?	No	No	No	No
Current month's release target	1255.5	1980.9	550	400

Note: \* Excess carried forward is capped at 10% of the current month's base flow.

Shortfall carried forward is 100% of the amount of water under released.

# Under stage 1 or greater water restrictions, targets flow change to a predetermined base flow.

Daily totals in Table 4 to Table 7 are reported as the 24-hour average from midnight to midnight. Operational changes to environmental flow releases occur during business hours, and therefore the value reported may be slightly different to the target flow on the day the flow is changed. This is particularly evident for large changes in flow e.g. the riffle and pool flushes as the flow is averaged for the day.

The actual daily flows, in megalitres per day (ML/d), from each reservoir are detailed in Table 4 to Table 7 together with the water produced at the water treatment plants (WTP) in Table 10.

Table 8 provides more detail with respect to environmental flows provided below Cotter Dam. The e-flows are made up of two components: water released from the Cotter Dam and water being pumped from Murrumbidgee River to below Cotter Dam. This is to satisfy the requirements set out by ACT EPA and Federal Department of the Environment for the operation of the Enlarged Cotter Dam.

Table 9 provides flow details for the operations of the Murrumbidgee to Googong pipeline. It details daily flows through the high lift pumps station as well as daily flows in the Murrumbidgee River at Angle crossing. This is to demonstrate compliance with the requirements set out by ACT EPA, Federal Department of the Environment and NSW Department of Planning.

Table 10 also details the quantity of treated water that has been transferred to Googong reservoir from Stromlo WTP.

**Table 4 - Monthly Environmental Flow release data for Corin dam**

SUM	410730 Gingera	410730 Gingera	Environmental flow release below Corin Date	Daily base flow	Additional release (pool / riffle)	Planned +/- 50% release regime	Calculated Natural Flow. (Unverified)	Calculated Natural Flow. (Verified)	Adjusted daily base flow. EOM = Revised monthly target	410752 Corin D/S	410752 Corin D/S	EOM Excess (+) / Shortfall (-) to carry forward	EOM Correction to 410730, Verified Vs unverified	EOM Correction to 410752, Verified Vs unverified	Comments
	(unverified)	(verified)								(Unverified)	(Verified)				
<b>Previous months adjustment</b>															
	188.57	197.3	Wed 1-Jun-22	28.00			9.5	269.3	281.8	28.0	345.04	343.1			
	173.63	177.8	<b>Thu 2-Jun-22</b>	28.00			42.0	248.0	254.0	28.0	284.21	283.6			
	171.30	173.2	Fri 3-Jun-22	28.00			42.0	244.7	247.4	28.0	261.85	263.1			
	184.30	179.6	Sat 4-Jun-22	28.00			42.0	263.2	256.5	28.0	269.59	270.1			
	258.08	246.2	Sun 5-Jun-22	28.00			42.0	368.6	351.6	28.0	352.03	348.9			
	314.86	313	Mon 6-Jun-22	28.00			42.0	449.7	447.1	28.0	458.31	456			
	312.27	318.7	Tue 7-Jun-22	28.00			42.0	446.0	455.2	28.0	475.52	473.5			
	282.17	291.7	Wed 8-Jun-22	28.00			42.0	403.0	416.6	28.0	435.87	434.3			
	267.36	271.9	<b>Thu 9-Jun-22</b>	28.00	150	14.0	381.9	388.4	150.0	413.82	412.3				
	265.23	268.3	Fri 10-Jun-22	28.00	150	14.0	378.8	383.2	150.0	391.98	390.4				
	253.18	256.7	Sat 11-Jun-22	28.00	150	14.0	361.6	366.6	150.0	386.11	385.1				Riffle release achieved
	246.86	247.2	Sun 12-Jun-22	28.00			14.0	352.6	353.1	28.0	353.81	350.1			
	237.75	240.5	Mon 13-Jun-22	28.00			14.0	339.6	343.5	28.0	348.04	345.1			
	227.32	229.2	Tue 14-Jun-22	28.00			14.0	324.7	327.4	28.0	335.24	333			
	220.09	220.8	Wed 15-Jun-22	28.00			14.0	314.4	315.4	28.0	327.13	325.1			
	240.73	235	<b>Thu 16-Jun-22</b>	28.00			42.0	343.8	335.7	28.0	336.4	332.9			
	235.44	239.2	Fri 17-Jun-22	28.00			42.0	336.3	341.6	28.0	346.9	341.7			
	223.70	225.9	Sat 18-Jun-22	28.00			42.0	319.5	322.7	28.0	326.1	322.8			
	217.32	218.3	Sun 19-Jun-22	28.00			42.0	310.4	311.8	28.0	312.4	308.5			
	218.06	217	Mon 20-Jun-22	28.00			42.0	311.5	309.9	28.0	308.3	304.3			
	248.67	242.6	Tue 21-Jun-22	28.00			42.0	355.2	346.5	28.0	339.9	333.6			
	227.19	232.9	Wed 22-Jun-22	28.00			42.0	324.5	332.7	28.0	342.3	338.6			
	225.00	223.3	<b>Thu 23-Jun-22</b>	28.00			14.0	321.4	318.9	28.0	321.8	318.5			
	231.18	229.7	Fri 24-Jun-22	28.00			14.0	330.2	328.1	28.0	331.9	325.8			
	222.00	224.7	Sat 25-Jun-22	28.00			14.0	317.1	320.9	28.0	319.3	314.7			
	212.16	212.5	Sun 26-Jun-22	28.00			14.0	303.0	303.5	28.0	306.42	302.2			
	206.26	207.2	Mon 27-Jun-22	28.00			14.0	294.6	295.9	28.0	305.98	302.4			
	197.25	198	Tue 28-Jun-22	28.00			14.0	281.7	282.8	28.0	284.22	278.4			
	191.41	191.3	Wed 29-Jun-22	28.00			14.0	273.4	273.2	28.0	276.79	271.3			
	186.09	186.6	<b>Thu 30-Jun-22</b>	28.00			42.0	265.8	266.5	28.0	270.60	265.2			
<b>SUM</b>	<b>6885.4</b>	<b>6916.3</b>		<b>840.0</b>	<b>450.0</b>	<b>835.5</b>	<b>9834.5</b>	<b>9878.6</b>	<b>1122.0</b>	<b>10167.7</b>	<b>10074.6</b>	<b>139.5</b>	<b>0.4%</b>	<b>-0.9%</b>	

**Table 5 - Monthly Environmental Flow release data for Bendora dam**

<b>SUM</b>	410730 Gingera (unverified)	410730 Gingera (verified)	<b>Environmental flow release below Bendora</b> Date	Daily base flow	Additional release (pool / riffle)	Planned +/- 50% release regime	Calculated Natural Flow. (Unverified)	Calculated Natural Flow. (Verified)	Adjusted daily base flow. <b>EOM = Revised monthly target</b>	410747 Bendora D/S (Unverified)	410747 Bendora D/S (Verified)	EOM Excess (+) / Shortfall (-) to carry forward	EOM Correction to <b>410730</b> , Verified Vs unverified	EOM Correction to <b>410747</b> , Verified Vs unverified	Comments
<b>Previous months adjustment</b>									<b>-135.0</b>						
	188.57	197.3	<b>Wed 1-Jun-22</b>	45.00		22.5	414.9	434.1	45.0	367.41	367.4				
	173.63	177.8	Thu 2-Jun-22	45.00		22.5	382.0	391.2	45.0	306.10	302				
	171.30	173.2	Fri 3-Jun-22	45.00		22.5	376.9	381.0	45.0	264.49	257.3				
	184.30	179.6	Sat 4-Jun-22	45.00		22.5	405.5	395.1	45.0	247.31	239.2				
	258.08	246.2	Sun 5-Jun-22	45.00		22.5	567.8	541.6	45.0	335.50	319.9				
	314.86	313	Mon 6-Jun-22	45.00		22.5	692.7	688.6	45.0	713.71	658.8				
	312.27	318.7	Tue 7-Jun-22	45.00		22.5	687.0	701.1	45.0	877.45	801.6				
	282.17	291.7	<b>Wed 8-Jun-22</b>	45.00		67.5	620.8	641.7	45.0	784.25	726.5				
	267.36	271.9	Thu 9-Jun-22	45.00		67.5	588.2	598.2	45.0	648.12	604.8				
	265.23	268.3	Fri 10-Jun-22	45.00		67.5	583.5	590.3	45.0	554.26	521.4				
	253.18	256.7	Sat 11-Jun-22	45.00		67.5	557.0	564.7	45.0	495.99	468				
	246.86	247.2	Sun 12-Jun-22	45.00		67.5	543.1	543.8	45.0	453.27	425.7				
	237.75	240.5	Mon 13-Jun-22	45.00		67.5	523.1	529.1	45.0	411.39	387.5				
	227.32	229.2	Tue 14-Jun-22	45.00		67.5	500.1	504.2	45.0	387.63	364.9				
	220.09	220.8	<b>Wed 15-Jun-22</b>	45.00	150	22.5	484.2	485.8	150.0	361.71	347.7				
	240.73	235	Thu 16-Jun-22	45.00	150	22.5	529.6	517.0	150.0	356.39	337.4				
	235.44	239.2	Fri 17-Jun-22	45.00	150	22.5	518.0	526.2	150.0	367.92	348.7				Riffle release achieved
	223.70	225.9	Sat 18-Jun-22	45.00		22.5	492.1	497.0	45.0	354.61	336.6				
	217.32	218.3	Sun 19-Jun-22	45.00		22.5	478.1	480.3	45.0	338.23	321.8				
	218.06	217	Mon 20-Jun-22	45.00		22.5	479.7	477.4	45.0	324.60	309.1				
	248.67	242.6	Tue 21-Jun-22	45.00		22.5	547.1	533.7	45.0	344.34	327.1				
	227.19	232.9	<b>Wed 22-Jun-22</b>	45.00		67.5	499.8	512.4	45.0	382.87	363				
	225.00	223.3	Thu 23-Jun-22	45.00		67.5	495.0	491.3	45.0	352.66	331.1				
	231.18	229.7	Fri 24-Jun-22	45.00		67.5	508.6	505.3	45.0	359.44	339.7				
	222.00	224.7	Sat 25-Jun-22	45.00		67.5	488.4	494.3	45.0	355.10	337.8				
	212.16	212.5	Sun 26-Jun-22	45.00		67.5	466.8	467.5	45.0	330.49	315.7				
	206.26	207.2	Mon 27-Jun-22	45.00		67.5	453.8	455.8	45.0	321.51	303.2				
	197.25	198	Tue 28-Jun-22	45.00		67.5	434.0	435.6	45.0	307.55	290				
	191.41	191.3	<b>Wed 29-Jun-22</b>	45.00		22.5	421.1	420.9	45.0	282.34	271.9				
	186.09	186.6	Thu 30-Jun-22	45.00		22.5	409.4	410.5	45.0	268.52	258.5				
<b>SUM</b>	<b>6,885.43</b>	<b>6916.3</b>		<b>1350.0</b>		<b>450.0</b>	<b>1305.0</b>	<b>15147.9</b>	<b>15215.9</b>	<b>1530.0</b>	<b>12255.2</b>	<b>11584.3</b>	<b>220.1</b>	<b>0.4%</b>	<b>-5.5%</b>





**Table 7 - Monthly Environmental Flow release data for Googong dam**

<b>SUM</b>	410781 Upstream Googong (Unverified)	410781 Upstream Googong (Verified)	<b>Environmental flow release below Googong Date</b>	Daily base flow	Additional release (pool / riffle)	Calculated Natural Flow. (Unverified)	Calculated Natural Flow. (Verified)	<b>EOM = Revised monthly target</b>	410760 Wickerslack (Unverified)	410760 Wickerslac k (Verified)	<b>EOM Excess (+) / Shortfall (-)</b>	<b>EOM Correction to 410781, Verified Vs unverified</b>	<b>EOM Correction to 410760, Verified Vs unverified</b>	Comments
<b>Previous months adjustment</b>								<b>-31029.7</b>						
	538.40		Wed 1-Jun-22	10.00		689.2		10.0	985.63	985.6				
	413.96		Thu 2-Jun-22	10.00		529.9		10.0	721.42	721.4				
	370.87		Fri 3-Jun-22	10.00		474.7		10.0	565.54	565.5				
	352.73		Sat 4-Jun-22	10.00		451.5		10.0	485.28	485.3				
	363.98		Sun 5-Jun-22	10.00		465.9		10.0	446.20	446.2				
	753.56		Mon 6-Jun-22	10.00		964.6		10.0	773.04	773				
	560.1		Tue 7-Jun-22	10.00		716.9		10.0	983.12	983.1				
	455.4		Wed 8-Jun-22	10.00		582.9		10.0	827.12	827.1				
	388.0		Thu 9-Jun-22	10.00		496.6		10.0	646.75	646.6				
	350.2		Fri 10-Jun-22	10.00		448.3		10.0	530.07	529.9				
	324.9		Sat 11-Jun-22	10.00		415.9		10.0	468.47	468.4				
	309.5		Sun 12-Jun-22	10.00		396.1		10.0	422.40	422.2				
	293.26		Mon 13-Jun-22	10.00		375.4		10.0	379.13	379.9				
	278.77		Tue 14-Jun-22	10.00		356.8		10.0	354.06	356.2				
	273.87		Wed 15-Jun-22	10.00		350.5		10.0	336.84	339				
	269.2		Thu 16-Jun-22	10.00		344.5		10.0	327.30	329.5				
	263.2		Fri 17-Jun-22	10.00		336.9		10.0	328.50	330.7				
	251.4		Sat 18-Jun-22	10.00		321.7		10.0	305.89	307.9				
	243.2		Sun 19-Jun-22	10.00		311.3		10.0	296.34	298.2				
	237.5		Mon 20-Jun-22	10.00		304.0		10.0	276.89	278.8				
	242.8		Tue 21-Jun-22	10.00		310.8		10.0	279.24	281.3				
	246.8		Wed 22-Jun-22	10.00		315.9		10.0	283.15	285.2				
	234.64		Thu 23-Jun-22	10.00		300.3		10.0	275.53	278.2				
	226.45		Fri 24-Jun-22	10.00		289.9		10.0	266.66	270.4				
	221.43		Sat 25-Jun-22	10.00		283.4		10.0	260.72	264.4				
	215.35		Sun 26-Jun-22	10.00		275.6		10.0	247.41	250.7				
	207.80		Mon 27-Jun-22	10.00		266.0		10.0	251.56	254.7				
	203.83		Tue 28-Jun-22	10.00		260.9		10.0	222.73	225.9				
	197.22		Wed 29-Jun-22	10.00		252.4		10.0	217.65	220.5				
	196.53		Thu 30-Jun-22	10.00		251.6		10.0	212.47	215.6				
<b>SUM</b>	<b>9484.7</b>	<b>0.0</b>		<b>300.0</b>	<b>0.0</b>	<b>12140.4</b>	<b>0.0</b>	<b>-30729.7</b>	<b>12977.1</b>	<b>13021.4</b>	<b>139.5</b>	<b>-100.0%</b>	<b>0.3%</b>	

Note:

410781 Upstream Googong verified data is provided every second month.

Table 8 – Monthly flow data for Cotter River Environmental Flows

Date	Cotter River e-flows below Cotter Dam		Comments
	E-flow sourced from Murrumbidgee via M2C	E-flow sourced from Cotter Dam release/spill	
1-Jun-22	0.0	837.6	
2-Jun-22	0.0	701.2	
3-Jun-22	0.0	570.8	
4-Jun-22	0.0	489.9	
5-Jun-22	0.0	506.3	
6-Jun-22	0.0	1057	
7-Jun-22	0.0	1519	
8-Jun-22	0.0	1544	
9-Jun-22	0.0	1272	
10-Jun-22	0.0	1071	
11-Jun-22	0.0	957.6	
12-Jun-22	0.0	824.8	
13-Jun-22	0.0	742	
14-Jun-22	0.0	688.3	
15-Jun-22	0.0	628.6	
16-Jun-22	0.0	592.6	
17-Jun-22	0.0	582.9	
18-Jun-22	0.0	565.9	
19-Jun-22	0.0	530.8	
20-Jun-22	0.0	508.9	
21-Jun-22	0.0	513.9	
22-Jun-22	0.0	545.7	
23-Jun-22	0.0	526.7	
24-Jun-22	0.0	498	
25-Jun-22	0.0	497.3	
26-Jun-22	0.0	471.4	
27-Jun-22	0.0	437.8	
28-Jun-22	0.0	416.8	
29-Jun-22	0.0	388.1	
30-Jun-22	0.0	366.2	
<b>Total</b>	<b>0.0</b>	<b>20853.1</b>	

**Table 9 – Monthly flow data for Murrumbidgee to Googong**

<b>Date</b>	<b>M2G Flow</b>	<b>Comments</b>
1-Jun-22	0.0	
2-Jun-22	0.0	
3-Jun-22	0.0	
4-Jun-22	0.0	
5-Jun-22	0.0	
6-Jun-22	0.0	
7-Jun-22	0.0	
8-Jun-22	0.0	
9-Jun-22	0.0	
10-Jun-22	0.0	
11-Jun-22	0.0	
12-Jun-22	0.0	
13-Jun-22	0.0	
14-Jun-22	0.0	
15-Jun-22	0.0	
16-Jun-22	0.0	
17-Jun-22	0.0	
18-Jun-22	0.0	
19-Jun-22	0.0	
20-Jun-22	0.0	
21-Jun-22	0.0	
22-Jun-22	0.0	
23-Jun-22	0.0	
24-Jun-22	0.0	
25-Jun-22	0.0	
26-Jun-22	0.0	
27-Jun-22	0.0	
28-Jun-22	0.0	
29-Jun-22	0.0	
30-Jun-22	0.0	
<b>Total</b>	<b>0.0</b>	

Table 10 – Monthly water production data and water transferred to Googong reservoir

Day	Stromlo WTP ML			Googong WTP ML	Transfer from SWTP to Googong res.
	M'bidgee	Cotter	Bendora		
1	0.0	2.5	99.4	0.0	0.0
2	0.0	0.0	104.8	0.0	0.0
3	0.0	0.0	108.7	0.0	0.0
4	0.0	0.0	117.3	0.0	0.0
5	0.0	0.0	115.0	0.0	0.0
6	0.0	0.0	109.8	0.0	0.0
7	0.0	0.0	110.8	0.0	0.0
8	0.0	0.0	112.5	0.0	0.0
9	0.0	0.0	108.4	0.0	0.0
10	0.0	0.0	119.1	0.0	0.0
11	0.0	0.0	118.4	0.0	0.0
12	0.0	0.0	116.2	0.0	0.0
13	0.0	0.0	110.3	0.0	0.0
14	0.0	0.0	112.9	0.0	0.0
15	0.0	0.0	107.5	0.0	0.0
16	0.0	0.0	111.7	0.0	0.0
17	0.0	0.0	116.8	0.0	0.0
18	0.0	0.0	115.7	0.0	0.0
19	0.0	0.0	115.6	0.0	0.0
20	0.0	0.0	113.0	0.0	0.0
21	0.0	0.0	115.2	0.0	0.0
22	0.0	0.0	115.2	0.0	0.0
23	0.0	0.0	117.4	0.0	0.0
24	0.0	0.0	113.2	0.0	0.0
25	0.0	0.0	112.3	0.0	0.0
26	0.0	0.0	115.2	0.0	0.0
27	0.0	0.0	120.1	0.0	0.0
28	0.0	0.0	115.9	0.0	0.0
29	0.0	0.0	115.7	0.0	0.0
30	0.0	0.0	115.7	0.0	0.0
<b>Total</b>	<b>0.0</b>	<b>2.5</b>	<b>3399.8</b>	<b>0.0</b>	<b>0.0</b>

## **Talk to us**

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