

# Licence WU67 Monthly Environmental Flow Report October 2021

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# **Document management**

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# 1. Introduction

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 October.  |
|           | Releases were at licence requirements throughout October.  |
|           | The bi-monthly riffle release was achieved via overflows.  |
|           | Flow variation was changed from +/- 50% to +/- 25% on 16 September to minimise dislodgement of Macquarie perch eggs in downstream reaches.   |
| Bendora   | Bendora Dam spilled throughout October.  |
|           | Releases were at licence requirements throughout October.  |
|           | The bi-monthly riffle release was achieved via overflows.  |
|           | Flow variation was changed from +/- 50% to +/- 25% on 16 September to minimise dislodgement of Macquarie perch eggs in downstream reaches.   |
| Cotter    | Cotter Dam spilled throughout October.   |
|           | Releases were at licence requirements throughout October.  |
| Googong   | Googong Dam spilled throughout October.  |
|           | Googong mini-hydro operated for the majority of October being offline for short periods during inclement weather. Releases were above licence requirements while the mini-hydro was operating. |

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 October. |
| Murrumbidgee<br>To Cotter Eflow | M2C did not operate in October.   |
| Murrumbidgee<br>to Googong      | M2G did not operate in October.   |
| 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 (+) * | 129   | 201     |        |         |
| Monthly 75% of the 80 <sup>th</sup> %tile ML # | 1290  | 2010    |        |         |
| Additional release required?                   | No    | No      | No     | No      |
| Current month's release target                 | 1161  | 1809    | 450    | 300     |

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 (unverified) | 410730<br>Gingera<br>(verified) | Environmental<br>flow release<br>below Corin<br>Date | Daily base     | Additional release (pool / riffle) | +/- 50%      | Calculated<br>Natural<br>Flow.<br>(Unverified) | Calculated<br>Natural<br>Flow.<br>(Verified) | Adjusted daily base flow. <b>EOM</b> = Revised monthly target | 410752<br>Corin D/S<br>(Unverified) | 410752<br>Corin D/S<br>(Verified) | EOM Excess (+) / Shortfall (-) to carry forward | EOM<br>Correction<br>to 410730,<br>Verified Vs<br>unverified | Correction<br>to 410752,<br>Verified Vs<br>unverified | Comments                |
|--------|-----------------------------|---------------------------------|--|----------------|------------------------------------|--------------|--|--|---|-------------------------------------|-----------------------------------|---|--|---|-------------------------|
| Drovio | us months ad                | instment                        |  |                |                                    |              |  |  | -198.4  |                                     |                                   |   |  |   |                         |
| rievio |                             |                                 | Fri 1-Oct-21   | 04.00          |                                    | 00.0         | 420.0  | 440.0  |   | 400.40                              | 445.2                             |   |  |   |                         |
|        | 305.65<br>289.16            |                                 | Sat 2-Oct-21   | 64.00<br>64.00 |                                    | 80.0<br>80.0 |  |  |   |                                     |                                   |   |  |   |                         |
|        |                             |                                 |  |                |                                    |              |  |  |   |                                     |                                   |   |  |   |                         |
|        | 254.54                      |                                 | Sun 3-Oct-21<br>Mon 4-Oct-21                         | 64.00<br>64.00 |                                    | 80.0         |  |  |   | 378.33<br>349.44                    |                                   |   |  |   |                         |
|        | 239.43<br>237.2             |                                 | Tue 5-Oct-21   | 64.00          |                                    | 80.0<br>80.0 |  |  |   |                                     |                                   |   |  |   |                         |
|        |                             |                                 |  |                |                                    |              |  |  |   |                                     |                                   |   |  |   |                         |
|        | 214.3                       |                                 | Wed 6-Oct-21<br>Thu 7-Oct-21                         | 64.00          |                                    | 80.0         |  |  |   |                                     |                                   |   |  |   |                         |
|        | 198.0<br>188.2              |                                 | Fri 8-Oct-21   | 64.00<br>64.00 |                                    | 48.0<br>48.0 |  |  |   |                                     |                                   |   |  |   |                         |
|        |                             |                                 | Sat 9-Oct-21   |                |                                    |              |  |  |   |                                     |                                   |   |  |   |                         |
|        | 178.98                      | 180.8<br>176.9                  | Sat 9-0ct-21<br>Sun 10-Oct-21                        | 64.00<br>64.00 |                                    | 48.0         |  |  |   | 263.56                              |                                   |   |  |   |                         |
|        | 180.01                      |                                 | Mon 11-Oct-21  | 64.00          |                                    | 48.0<br>48.0 |  |  |   |                                     |                                   |   |  |   |                         |
|        | 179.43<br>172.64            | 183.1<br>172.5                  | Tue 12-Oct-21  | 64.00          |                                    | 48.0         |  |  |   |                                     |                                   |   |  |   |                         |
|        | 233.47                      | 172.5                           | Wed 13-Oct-21  | 64.00          |                                    | 48.0         |  |  |   |                                     |                                   |   |  |   |                         |
|        |                             | 428.4                           | Thu 14-Oct-21  |                |                                    |              |  |  |   |                                     |                                   |   |  |   |                         |
|        | 421.55                      | 308                             |  | 64.00          |                                    |              |  |  |   | 480.9                               |                                   |   |  |   |                         |
|        | 301.94                      |                                 | Fri 15-Oct-21  | 64.00          |                                    |              |  |  |   | 438.5                               |                                   |   |  |   | D'Ma antono antino d    |
|        | 283.60                      | 288.7                           | Sat 16-Oct-21  | 64.00          |                                    |              |  |  |   |                                     |                                   |   |  |   | Riffle release achieved |
|        | 252.20                      | 257.8<br>238.9                  | Sun 17-Oct-21  | 64.00          |                                    | 80.0         |  |  |   |                                     |                                   |   |  |   |                         |
|        | 237.91<br>231.19            | 238.9                           | Mon 18-Oct-21<br>Tue 19-Oct-21                       | 64.00<br>64.00 |                                    | 80.0<br>80.0 |  |  |   | 330.39<br>330.67                    |                                   |   |  |   |                         |
|        |                             | 234.2                           | Wed 20-Oct-21  | 64.00          |                                    |              |  |  |   |                                     |                                   |   |  |   |                         |
|        | 226.81<br>215.14            | 226.9                           | Thu 21-Oct-21  | 64.00          |                                    | 80.0<br>48.0 |  |  |   | 304.48<br>294.69                    |                                   |   |  |   |                         |
|        |                             |                                 |  |                |                                    |              |  |  |   |                                     |                                   |   |  |   |                         |
|        | 203.59                      | 206                             | Fri 22-Oct-21  | 64.00          |                                    | 48.0         |  |  |   | 284.88                              |                                   |   |  |   |                         |
|        | 192.57                      | 195                             | Sat 23-Oct-21  | 64.00          |                                    | 48.0         |  |  |   |                                     |                                   |   |  |   |                         |
|        | 181.32                      | 183.6                           | Sun 24-Oct-21  | 64.00          |                                    | 48.0         |  |  |   | 260.66                              |                                   |   |  |   |                         |
|        | 175.00                      | 175.9                           | Mon 25-Oct-21  | 64.00          |                                    | 48.0         |  |  |   |                                     |                                   |   |  |   |                         |
|        | 167.47                      | 169.3                           | Tue 26-Oct-21  | 64.00          |                                    | 48.0         |  |  |   | 233.64                              |                                   |   |  |   |                         |
|        | 157.91                      | 160                             | Wed 27-Oct-21  | 64.00          |                                    | 48.0         |  |  |   | 224.41                              |                                   |   |  |   |                         |
|        | 151.21                      | 152.1                           | Thu 28-Oct-21  | 64.00          |                                    | 80.0         |  |  |   | 212.78                              |                                   |   |  |   |                         |
|        | 146.30                      | 147.7                           | Fri 29-Oct-21  | 64.00          |                                    | 80.0         |  |  |   |                                     |                                   |   |  |   |                         |
|        | 139.38                      | 140.8                           | Sat 30-Oct-21  | 64.00          |                                    | 80.0         |  |  |   | 190.06                              |                                   |   |  |   |                         |
|        | 134.24                      | 135.2                           | Sun 31-Oct-21  | 64.00          |                                    | 80.0         |  |  |   |                                     |                                   |   |  | ,   |                         |
| MUS    | 6,690.21                    |                                 |  | 1984.0         | 450.0                              | 2032.0       | 9555.6   | 9602.0                                       | 2043.6  | 9361.8                              | 9391.8                            | 201.0   | -100.0%  | 6 0.3%  |                         |

Table 5 - Monthly Environmental Flow release data for Bendora dam

|        |              | 410730     | Environmental flow release |            | release | Planned<br>+/- 50% | Calculated<br>Natural | Calculated<br>Natural | Adjusted daily base flow. | 410747<br>Bendora | 410747<br>Bendora | EOM<br>Excess (+) /<br>Shortfall (-) | to <b>410730</b> , | EOM<br>Correction<br>to 410747, |                                       |
|--------|--------------|------------|----------------------------|------------|---------|--------------------|-----------------------|-----------------------|---------------------------|-------------------|-------------------|--------------------------------------|--------------------|---------------------------------|---------------------------------------|
|        | Gingera      | Gingera    | below Bendora              | Daily base | (pool / | release            | Flow.                 | Flow.                 | EOM = Revised             | D/S               | D/S               | to carry                             | Verified Vs        | Verified Vs                     | 0                                     |
| SUM    | (unverified) | (verified) | Date                       | flow       | riffle) | regime             | (Unverified)          | (Verified)            | monthly target            | (Unverified)      | (Verified)        | forward                              | unverified         | unverified                      | Comments                              |
| Previo | us months a  | diustment  |                            |            |         |                    |                       |                       | -310.0                    |                   |                   |                                      |                    |                                 |                                       |
|        | 305.65       |            | Fri 1-Oct-21               | 100.00     |         | 125.0              | 672.4                 | 692.1                 |                           | 592.3             | 582.4             |                                      |                    |                                 |                                       |
|        | 289.16       |            | Sat 2-Oct-21               |            |         | 125.0              |                       | 627.2                 |                           |                   | 644.4             |                                      |                    |                                 | Comms loss to BEND due to PLC failure |
|        | 254.54       |            | Sun 3-Oct-21               |            |         | 125.0              |                       |                       |                           | 634.9             |                   |                                      |                    |                                 | Comms loss to BEND due to PLC failure |
|        | 239.43       |            | Mon 4-Oct-21               | 100.00     |         | 125.0              |                       | 520.7                 |                           | 565.4             | 565.4             |                                      |                    |                                 | Comms loss to BEND due to PLC failure |
|        | 237.2        | 240.7      | Tue 5-Oct-21               | 100.00     |         | 125.0              | 521.7                 | 529.5                 | 100.0                     | 517.5             | 517.5             |                                      |                    |                                 | Comms loss to BEND due to PLC failure |
|        | 214.3        |            | Wed 6-Oct-21               |            |         | 75.0               |                       |                       |                           | 453.9             |                   |                                      |                    |                                 | Comms loss to BEND due to PLC failure |
|        | 198.0        |            | Thu 7-Oct-21               |            |         | 75.0               |                       |                       |                           | 391.5             |                   |                                      |                    |                                 |                                       |
|        | 188.2        |            | Fri 8-Oct-21               |            |         | 75.0               |                       |                       |                           | 350.1             |                   |                                      |                    |                                 |                                       |
|        | 178.98       | 180.8      | Sat 9-Oct-21               | 100.00     |         | 75.0               | 393.7                 | 397.8                 | 100.0                     | 310.51            | 301.6             |                                      |                    |                                 |                                       |
|        | 180.01       | 176.9      | Sun 10-Oct-21              |            |         | 75.0               |                       |                       |                           | 282.99            |                   |                                      |                    |                                 |                                       |
|        | 179.43       | 183.1      | Mon 11-Oct-21              | 100.00     |         | 75.0               | 394.7                 | 402.8                 | 100.0                     | 279.0             | 268.4             |                                      |                    |                                 |                                       |
|        | 172.64       | 172.5      | Tue 12-Oct-21              | 100.00     |         | 75.0               | 379.8                 | 379.5                 | 100.0                     | 260.3             | 249.6             |                                      |                    |                                 |                                       |
|        | 233.47       | 195.2      | Wed 13-Oct-21              | 100.00     | 150     | 125.0              | 513.6                 | 429.4                 | 150.0                     | 268.7             | 257.6             |                                      |                    |                                 |                                       |
|        | 421.55       | 428.4      | Thu 14-Oct-21              | 100.00     | 150     | 125.0              | 927.4                 | 942.5                 | 150.0                     | 544.9             | 506.5             |                                      |                    |                                 |                                       |
|        | 301.94       | 308        | Fri 15-Oct-21              |            |         |                    |                       |                       |                           | 667.3             |                   |                                      |                    |                                 | Riffle release achieved               |
|        | 283.60       | 288.7      | Sat 16-Oct-21              | 100.00     |         | 125.0              | 623.9                 | 635.1                 | 100.0                     | 570.8             | 529.3             |                                      |                    |                                 |                                       |
|        | 252.20       | 257.8      | Sun 17-Oct-21              | 100.00     |         | 125.0              | 554.8                 | 567.2                 | 100.0                     | 480.1             | 452               |                                      |                    |                                 |                                       |
|        | 237.91       | 238.9      | Mon 18-Oct-21              | 100.00     |         | 125.0              | 523.4                 | 525.6                 | 100.0                     | 414.33            | 387               |                                      |                    |                                 |                                       |
|        | 231.19       | 234.2      | Tue 19-Oct-21              | 100.00     |         | 125.0              | 508.6                 | 515.2                 | 100.0                     | 424.58            | 397.2             |                                      |                    |                                 |                                       |
|        | 226.81       | 226.9      | Wed 20-Oct-21              | 100.00     |         | 75.0               | 499.0                 | 499.2                 | 100.0                     | 378.79            | 355.9             |                                      |                    |                                 |                                       |
|        | 215.14       | 217.7      | Thu 21-Oct-21              | 100.00     |         | 75.0               | 473.3                 | 478.9                 | 100.0                     | 339.40            | 317.4             |                                      |                    |                                 |                                       |
|        | 203.59       | 206        | Fri 22-Oct-21              | 100.00     |         | 75.0               | 447.9                 | 453.2                 | 100.0                     | 324.27            | 306.1             |                                      |                    |                                 |                                       |
|        | 192.57       | 195        | Sat 23-Oct-21              | 100.00     |         | 75.0               | 423.7                 | 429.0                 | 100.0                     | 292.69            | 280.2             |                                      |                    |                                 |                                       |
|        | 181.32       | 183.6      | Sun 24-Oct-21              |            |         | 75.0               |                       |                       |                           | 254.75            |                   |                                      |                    |                                 |                                       |
|        | 175.00       | 175.9      | Mon 25-Oct-21              |            |         | 75.0               |                       |                       |                           | 228.36            |                   |                                      |                    |                                 |                                       |
|        | 167.47       | 169.3      | Tue 26-Oct-21              | 100.00     |         | 75.0               | 368.4                 | 372.5                 | 100.0                     | 210.35            | 201.2             |                                      |                    |                                 |                                       |
|        | 157.91       | 160        | Wed 27-Oct-21              | 100.00     |         | 125.0              |                       |                       |                           | 198.20            | 191.5             |                                      |                    |                                 |                                       |
|        | 151.21       | 152.1      | Thu 28-Oct-21              | 100.00     |         | 125.0              |                       | 334.6                 |                           | 180.02            |                   |                                      |                    |                                 | İ                                     |
|        | 146.30       | 147.7      | Fri 29-Oct-21              | 100.00     |         | 125.0              | 321.9                 | 324.9                 | 100.0                     | 161.66            | 157.3             |                                      |                    |                                 |                                       |
|        | 139.38       | 140.8      | Sat 30-Oct-21              |            |         | 125.0              |                       |                       |                           | 144.21            |                   |                                      |                    |                                 |                                       |
|        | 134.24       | 135.2      | Sun 31-Oct-21              | 100.00     |         | 125.0              |                       |                       |                           | 124.74            |                   |                                      |                    |                                 |                                       |
| SUM    | 6,690.21     |            |                            | 3100.0     | 450.0   | 3175.0             | 14718.5               | 14789.9               | 2940.0                    | 10846.3           | 11060.7           | 201.0                                | -100.0%            | 6 2.0%                          |                                       |

Table 6 - Monthly Environmental Flow release data for Cotter dam

| SUM     | Environmental flow release below Cotter | Daily base flow | Additional release (pool / riffle) | EOM = Revised monthly target |         | 410700<br>Cotter D/S<br>(Verified) | EOM<br>Excess (+) /<br>Shortfall (-) | EOM<br>Correction<br>to <b>410700</b> ,<br>Verified Vs<br>unverified | Comments |
|---------|---|-----------------|------------------------------------|------------------------------|---------|------------------------------------|--------------------------------------|--|----------|
| Previou | s months adjustment                     |                 |                                    | 0.0                          |         |                                    |                                      |  |          |
|         | Fri 1-Oct-21                            | 15              | 5                                  | 15.0                         | 1054.9  | 1043                               |                                      |  |          |
|         | Sat 2-Oct-21                            |                 |                                    | 15.0                         | 1213.2  |                                    |                                      |  |          |
|         | Sun 3-Oct-21                            |                 |                                    | 15.0                         | 1182.5  |                                    |                                      |  |          |
|         | Mon 4-Oct-21                            |                 |                                    | 15.0                         | 1059.0  |                                    |                                      |  |          |
|         | Tue 5-Oct-21                            |                 |                                    | 15.0                         | 913.7   |                                    |                                      |  |          |
|         | Wed 6-Oct-21                            | 15              | 5                                  | 15.0                         | 773.9   | 757.6                              |                                      |  |          |
|         | Thu 7-Oct-21                            | 15              | 5                                  | 15.0                         | 670.6   | 621.8                              |                                      |  |          |
|         | Fri 8-Oct-21                            | 15              | 5                                  | 15.0                         | 550.4   | 530.1                              |                                      |  |          |
|         | Sat 9-Oct-21                            | 15              | 5                                  | 15.0                         | 489.9   | 473.5                              |                                      |  |          |
|         | Sun 10-Oct-21                           |                 |                                    | 15.0                         | 430.2   | 418.2                              |                                      |  |          |
|         | Mon 11-Oct-21                           | 15              | 5                                  | 15.0                         | 392.6   | 383.4                              |                                      |  |          |
|         | Tue 12-Oct-21                           | 15              | 5                                  | 15.0                         | 372.5   | 365.4                              |                                      |  |          |
|         | Wed 13-Oct-21                           | 15              | 5                                  | 15.0                         | 381.1   | 374.5                              |                                      |  |          |
|         | Thu 14-Oct-21                           | 15              | 5                                  | 15.0                         | 711.4   | 701.4                              |                                      |  |          |
|         | Fri 15-Oct-21                           | 15              | 5                                  | 15.0                         | 939.1   | 929.3                              |                                      |  |          |
|         | Sat 16-Oct-21                           | 15              | 5                                  | 15.0                         | 854.9   | 848                                |                                      |  |          |
|         | Sun 17-Oct-21                           | 15              | 5                                  | 15.0                         | 724.7   | 721.2                              |                                      |  |          |
|         | Mon 18-Oct-21                           | 15              | 5                                  | 15.0                         | 628.8   | 627.3                              |                                      |  |          |
|         | Tue 19-Oct-21                           | 15              | 5                                  | 15.0                         | 556.4   | 556.6                              |                                      |  |          |
|         | Wed 20-Oct-21                           | 15              | 5                                  | 15.0                         | 534.2   | 536.8                              |                                      |  |          |
|         | Thu 21-Oct-21                           | 15              | 5                                  | 15.0                         | 471.1   | 475                                |                                      |  |          |
|         | Fri 22-Oct-21                           | 15              | 5                                  | 15.0                         | 441.3   | 446.3                              |                                      |  |          |
|         | Sat 23-Oct-21                           |                 |                                    | 15.0                         | 420.6   | 426.5                              |                                      |  |          |
|         | Sun 24-Oct-21                           | 15              | 5                                  | 15.0                         | 366.82  | 372.6                              |                                      |  |          |
|         | Mon 25-Oct-21                           |                 |                                    | 15.0                         | 317.77  | 322.8                              |                                      |  |          |
|         | Tue 26-Oct-21                           | 15              | 5                                  | 15.0                         | 300.36  | 305.2                              |                                      |  |          |
|         | Wed 27-Oct-21                           | 15              | 5                                  | 15.0                         | 285.31  |                                    |                                      |  |          |
|         | Thu 28-Oct-21                           | 15              | 5                                  | 15.0                         | 268.30  | 273.9                              |                                      |  |          |
|         | Fri 29-Oct-21                           | 15              | 5                                  | 15.0                         | 263.03  | 269.2                              |                                      |  |          |
|         | Sat 30-Oct-21                           | 15              | 5                                  | 15.0                         | 219.28  | 225.7                              |                                      |  |          |
|         | Sun 31-Oct-21                           | 15              | 5                                  | 15.0                         | 198.8   | 205.6                              |                                      |  |          |
| SUM     |   | 465.0           | 0.0                                | 465.0                        | 17986.6 | 17836.2                            | 17371.2                              | -0.8%  |          |

Table 7 - Monthly Environmental Flow release data for Googong dam

|        | 410781<br>Upstream<br>Googong | 410781<br>Upstream<br>Googong | Environmental flow release below Googong | Daily base | Additional release (pool / | Calculated<br>Natural<br>Flow. | Calculated<br>Natural<br>Flow. | EOM = Revised  | 410760<br>Wickerslack | 410760<br>Wickerslac | EOM           | EOM<br>Correction<br>to <b>410781</b> ,<br>Verified Vs | EOM<br>Correction<br>to <b>410760</b> ,<br>Verified Vs |          |
|--------|-------------------------------|-------------------------------|--|------------|----------------------------|--------------------------------|--------------------------------|----------------|-----------------------|----------------------|---------------|--|--|----------|
|        | (Unverified)                  |                               | Date                                     | flow       | riffle)                    |                                | (Verified)                     | monthly target | (Unverified)          | k (Verified)         | Shortfall (-) |  | unverified   | Comments |
| Previo | us months                     | adiustmei                     | nt                                       |            |                            |                                |                                |                |                       |                      |               |  |  |          |
|        | 2808.9                        |                               |  | 10.0       |                            | 3595.4                         | 3874.6                         | 10.0           | 5319.45               | 5319                 |               |  |  |          |
|        | 1278.5                        |                               |  | 10.0       |                            | 1636.5                         | 1753.6                         | 10.0           | 3375.36               | 3375                 |               |  |  |          |
|        | 957.6                         |                               | Sun 3-Oct-21                             | 10.0       |                            | 1225.7                         | 1356.8                         | 10.0           | 2375.29               | 2375                 |               |  |  |          |
|        | 598.5                         |                               | Mon 4-Oct-21                             | 10.0       |                            | 766.1                          | 832.5                          | 10.0           | 1421.14               | 1421                 |               |  |  |          |
|        | 427.9                         |                               | Tue 5-Oct-21                             | 10.0       |                            | 547.7                          | 581.1                          | 10.0           | 948.5                 | 948.5                |               |  |  |          |
|        | 332.8                         |                               | Wed 6-Oct-21                             | 10.0       |                            | 425.9                          | 447.7                          | 10.0           | 662.9                 | 662.9                |               |  |  |          |
|        | 276.0                         |                               | Thu 7-Oct-21                             | 10.0       |                            | 353.3                          | 365.2                          | 10.0           | 492.1                 | 492.1                |               |  |  |          |
|        | 247.1                         |                               | Fri 8-Oct-21                             | 10.0       |                            | 316.3                          |                                | 10.0           | 389.4                 | 389.4                |               |  |  |          |
|        | 218.14                        |                               | Sat 9-Oct-21                             | 10.0       |                            | 279.2                          |                                | 10.0           | 329.22                | 329.2                |               |  |  |          |
|        | 203.45                        |                               | Sun 10-Oct-21                            | 10.0       |                            | 260.4                          |                                | 10.0           | 292.35                | 292.4                |               |  |  |          |
|        | 277.1                         |                               | Mon 11-Oct-21                            | 10.0       |                            | 354.7                          |                                | 10.0           | 309.58                | 309.6                |               |  |  |          |
|        | 307.5                         |                               | Tue 12-Oct-21                            | 10.0       |                            | 393.6                          |                                | 10.0           | 309.95                | 310                  |               |  |  |          |
|        | 262.8                         |                               | Wed 13-Oct-21                            | 10.0       |                            | 336.4                          |                                | 10.0           | 313.42                | 313.4                |               |  |  |          |
|        | 1492.5                        |                               | Thu 14-Oct-21                            | 10.0       |                            | 1910.4                         |                                | 10.0           | 841.75                | 841.7                |               |  |  |          |
|        | 1310.6                        |                               | Fri 15-Oct-21                            | 10.0       |                            | 1677.6                         |                                | 10.0           | 1997.67               | 1998                 |               |  |  |          |
|        | 747.6                         |                               | Sat 16-Oct-21                            | 10.0       |                            | 956.9                          |                                | 10.0           | 1478.22               | 1478                 |               |  |  |          |
|        | 504.0                         |                               | Sun 17-Oct-21                            | 10.0       |                            | 645.1                          |                                | 10.0           | 944.07                | 944.1                |               |  |  |          |
|        | 398.73                        |                               | Mon 18-Oct-21                            | 10.0       |                            | 510.4                          |                                | 10.0           | 670.28                | 670.3                |               |  |  |          |
|        | 352.10                        |                               | Tue 19-Oct-21                            | 10.0       |                            | 450.7                          |                                | 10.0           | 562.37                | 562.4                |               |  |  |          |
|        | 410.94                        |                               | Wed 20-Oct-21                            | 10.0       |                            | 526.0                          |                                | 10.0           | 492.78                | 492.8                |               |  |  |          |
|        | 749.23                        |                               | Thu 21-Oct-21                            | 10.0       |                            | 959.0                          |                                | 10.0           | 541.58                | 541.6                |               |  |  |          |
|        | 549.68                        |                               | Fri 22-Oct-21                            | 10.0       |                            | 703.6                          |                                | 10.0           | 687.54                | 687.5                |               |  |  |          |
|        | 442.46                        |                               | Sat 23-Oct-21                            | 10.0       |                            | 566.3                          |                                | 10.0           | 599.09                | 599.1                |               |  |  |          |
|        | 378.53                        |                               | Sun 24-Oct-21                            | 10.0       |                            | 484.5                          |                                | 10.0           | 525.05                | 525.1                |               |  |  |          |
|        | 332.17                        |                               | Mon 25-Oct-21                            | 10.0       |                            | 425.2                          |                                | 10.0           | 435.33                | 435.3                |               |  |  |          |
|        | 300.92                        |                               | Tue 26-Oct-21                            | 10.0       |                            | 385.2                          |                                | 10.0           | 368.62                | 368.6                |               |  |  |          |
|        | 280.00                        |                               | Wed 27-Oct-21                            | 10.0       |                            | 358.4                          |                                | 10.0           | 321.48                | 321.5                |               |  |  |          |
|        | 258.19                        |                               | Thu 28-Oct-21                            | 10.0       |                            | 330.5                          |                                | 10.0           | 300.68                | 300.7                |               |  |  |          |
|        | 241.78                        |                               | Fri 29-Oct-21                            | 10.0       |                            | 309.5                          |                                | 10.0           | 274.56                | 274.6                |               |  |  |          |
|        | 227.31                        |                               | Sat 30-Oct-21                            | 10.0       |                            | 291.0                          |                                | 10.0           | 276.14                | 276.1                |               |  |  |          |
|        | 213.28                        |                               | Sun 31-Oct-21                            | 10.0       |                            | 273.0                          |                                | 10.0           | 256.54                | 256.5                |               |  |  |          |
| SUM    | 17386.4                       | 7196.5                        |  | 310.0      | 0.0                        | 22254.6                        | 9211.5                         | 310.0          | 28112.3               | 28111.4              | 27801.4       | -58.6%   | 0.0%   |          |

#### Note:

410781 Upstream Googong verified data is provided every second month.

Table 8 – Monthly flow data for Cotter River Environmental Flows

|               | Cotter River e-flows I                   | below Cotter Dam                                   |          |
|---------------|--|--|----------|
| Date          | E-flow sourced from Murrumbidgee via M2C | E-flow sourced<br>from Cotter Dam<br>release/spill | Comments |
| Fri 1-Oct-21  | 0.0                                      | 1043   |          |
| Sat 2-Oct-21  | 0.0                                      | 1200   |          |
| Sun 3-Oct-21  | 0.0                                      | 1169   |          |
| Mon 4-Oct-21  | 0.0                                      | 1052   |          |
| Tue 5-Oct-21  | 0.0                                      | 913.7  |          |
| Wed 6-Oct-21  | 0.0                                      | 757.6  |          |
| Thu 7-Oct-21  | 0.0                                      | 621.8  |          |
| Fri 8-Oct-21  | 0.0                                      | 530.1  |          |
| Sat 9-Oct-21  | 0.0                                      | 473.5  |          |
| Sun 10-Oct-21 | 0.0                                      | 418.2  |          |
| Mon 11-Oct-21 | 0.0                                      | 383.4  |          |
| Tue 12-Oct-21 | 0.0                                      | 365.4  |          |
| Wed 13-Oct-21 | 0.0                                      | 374.5  |          |
| Thu 14-Oct-21 | 0.0                                      | 701.4  |          |
| Fri 15-Oct-21 | 0.0                                      | 929.3  |          |
| Sat 16-Oct-21 | 0.0                                      | 848  |          |
| Sun 17-Oct-21 | 0.0                                      | 721.2  |          |
| Mon 18-Oct-21 | 0.0                                      | 627.3  |          |
| Tue 19-Oct-21 | 0.0                                      | 556.6  |          |
| Wed 20-Oct-21 | 0.0                                      | 536.8  |          |
| Thu 21-Oct-21 | 0.0                                      | 475  |          |
| Fri 22-Oct-21 | 0.0                                      | 446.3  |          |
| Sat 23-Oct-21 | 0.0                                      | 426.5  |          |
| Sun 24-Oct-21 | 0.0                                      | 372.6  |          |
| Mon 25-Oct-21 | 0.0                                      | 322.8  |          |
| Tue 26-Oct-21 | 0.0                                      | 305.2  |          |
| Wed 27-Oct-21 | 0.0                                      | 290.6  |          |
| Thu 28-Oct-21 | 0.0                                      | 273.9  |          |
| Fri 29-Oct-21 | 0.0                                      | 269.2  |          |
| Sat 30-Oct-21 | 0.0                                      | 225.7  |          |
| Sun 31-Oct-21 | 0.0                                      | 205.6  |          |
| Total         | 0.0                                      | 17836.2  |          |

Table 9 – Monthly flow data for Murrumbidgee to Googong

| Date          | Murrumbidgee at Angle crossing | M2G Flow | Comments |
|---------------|--------------------------------|----------|----------|
| Fri 1-Oct-21  | 1619                           | 0.0      |          |
| Sat 2-Oct-21  | 2554                           | 0.0      |          |
| Sun 3-Oct-21  | 2697                           | 0.0      |          |
| Mon 4-Oct-21  | 2346                           | 0.0      |          |
| Tue 5-Oct-21  | 1968                           | 0.0      |          |
| Wed 6-Oct-21  | 1524                           | 0.0      |          |
| Thu 7-Oct-21  | 1293                           | 0.0      |          |
| Fri 8-Oct-21  | 1155                           | 0.0      |          |
| Sat 9-Oct-21  | 1108                           | 0.0      |          |
| Sun 10-Oct-21 | 1150                           | 0.0      |          |
| Mon 11-Oct-21 | 1108                           | 0.0      |          |
| Tue 12-Oct-21 | 1083                           | 0.0      |          |
| Wed 13-Oct-21 | 1183                           | 0.0      |          |
| Thu 14-Oct-21 | 1493                           | 0.0      |          |
| Fri 15-Oct-21 | 1466                           | 0.0      |          |
| Sat 16-Oct-21 | 1995                           | 0.0      |          |
| Sun 17-Oct-21 | 1857                           | 0.0      |          |
| Mon 18-Oct-21 | 1556                           | 0.0      |          |
| Tue 19-Oct-21 | 1340                           | 0.0      |          |
| Wed 20-Oct-21 | 1213                           | 0.0      |          |
| Thu 21-Oct-21 | 1659                           | 0.0      |          |
| Fri 22-Oct-21 | 2910                           | 0.0      |          |
| Sat 23-Oct-21 | 2715                           | 0.0      |          |
| Sun 24-Oct-21 | 2167                           | 0.0      |          |
| Mon 25-Oct-21 | 1771                           | 0.0      |          |
| Tue 26-Oct-21 | 1454                           | 0.0      |          |
| Wed 27-Oct-21 | 1215                           | 0.0      |          |
| Thu 28-Oct-21 | 1074                           | 0.0      |          |
| Fri 29-Oct-21 | 973.1                          | 0.0      |          |
| Sat 30-Oct-21 | 910.7                          | 0.0      |          |
| Sun 31-Oct-21 | 1014                           | 0.0      |          |
| Total         | 49570.8                        | 0.0      |          |

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

| Day   | Stromlo WTP ML |        |         | Googong<br>WTP ML |
|-------|----------------|--------|---------|-------------------|
|       | M'bidgee       | Cotter | Bendora | , <b>**</b> ****  |
| 1     | 0.0            | 0.0    | 109.6   | 0.0               |
| 2     | 0.0            | 0.0    | 113.5   | 0.0               |
| 3     | 0.0            | 0.0    | 115.8   | 0.0               |
| 4     | 0.0            | 0.0    | 114.8   | 0.0               |
| 5     | 0.0            | 0.0    | 114.9   | 0.0               |
| 6     | 0.0            | 0.0    | 114.9   | 0.0               |
| 7     | 0.0            | 0.0    | 120.2   | 0.0               |
| 8     | 0.0            | 0.0    | 118.7   | 0.0               |
| 9     | 0.0            | 0.0    | 118.5   | 0.0               |
| 10    | 0.0            | 0.0    | 121.2   | 0.0               |
| 11    | 0.0            | 0.0    | 120.1   | 0.0               |
| 12    | 0.0            | 0.0    | 114.1   | 0.0               |
| 13    | 0.0            | 0.0    | 114.5   | 0.0               |
| 14    | 0.0            | 0.0    | 111.7   | 0.0               |
| 15    | 0.0            | 0.0    | 113.6   | 0.0               |
| 16    | 0.0            | 0.0    | 124.5   | 0.0               |
| 17    | 0.0            | 0.0    | 114.2   | 0.0               |
| 18    | 0.0            | 0.0    | 122.6   | 0.0               |
| 19    | 0.0            | 0.0    | 144.6   | 0.0               |
| 20    | 0.0            | 0.0    | 80.5    | 0.0               |
| 21    | 0.0            | 0.0    | 121.4   | 0.0               |
| 22    | 0.0            | 0.0    | 115.3   | 0.0               |
| 23    | 0.0            | 0.0    | 109.7   | 0.0               |
| 24    | 0.0            | 0.0    | 136.6   | 0.0               |
| 25    | 0.0            | 0.0    | 139.6   | 0.0               |
| 26    | 0.0            | 0.0    | 133.9   | 0.0               |
| 27    | 0.0            | 0.0    | 130.8   | 0.0               |
| 28    | 0.0            | 0.0    | 127.2   | 0.0               |
| 29    | 0.0            | 0.0    | 136.4   | 0.0               |
| 30    | 0.0            | 0.0    | 142.9   | 0.0               |
| 31    | 0.0            | 0.0    | 145.9   | 0.0               |
| Total | 0.0            | 0.0    | 3762.2  | 0.0               |

| Transfer from SWTP to Googong res. |  |  |  |  |
|------------------------------------|--|--|--|--|
|                                    |  |  |  |  |
| 0.0                                |  |  |  |  |
| 0.0                                |  |  |  |  |
| 0.0                                |  |  |  |  |
| 0.0                                |  |  |  |  |
| 0.0                                |  |  |  |  |
| 0.0                                |  |  |  |  |
| 14.1                               |  |  |  |  |
| 0.0                                |  |  |  |  |
| 0.0                                |  |  |  |  |
| 0.0                                |  |  |  |  |
| 0.0                                |  |  |  |  |
| 0.0                                |  |  |  |  |
| 0.0                                |  |  |  |  |
| 0.0                                |  |  |  |  |
| 0.0                                |  |  |  |  |
| 0.0                                |  |  |  |  |
| 0.0                                |  |  |  |  |
| 0.0                                |  |  |  |  |
| 0.0                                |  |  |  |  |
| 0.0                                |  |  |  |  |
| 0.0                                |  |  |  |  |
| 0.0                                |  |  |  |  |
| 0.0                                |  |  |  |  |
| 0.0                                |  |  |  |  |
| 0.0                                |  |  |  |  |
| 0.0                                |  |  |  |  |
| 0.0                                |  |  |  |  |
| 0.0                                |  |  |  |  |
| 0.0                                |  |  |  |  |
| 0.0                                |  |  |  |  |
| 14.1                               |  |  |  |  |

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