



# Safe Drinking Water Act 2003

## Water Storage Manager

### 2017-18 Annual Report



## List of Abbreviations and Acronyms

BGA	Blue Green Algae
CMA	Catchment Management Authority
CHW	Central Highlands Water
CW	Coliban Water
DELWP	Department of Environment, Land, Water and Planning
DHHS	Department of Health and Human Services
GMW	Goulburn-Murray Water
GVW	Goulburn Valley Water
GWMWater	Grampians Wimmera Mallee Water
LMW	Lower Murray Water
LWM	Local Water Manager
MVIA	Murray Valley Irrigation Area
OFI	Opportunity for Improvement
RC	Regional Coordinator
RMP	Risk Management Plan
Regulations	Safe Drinking Water Regulations 2015
The Act	Safe Drinking Water Act 2003
The Circular	Blue-Green Algae Circular for 2017/18

*Front cover photo: Casey's Weir, Broken River*

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# 1. Introduction

Goulburn-Murray Rural Water Corporation, trading as Goulburn-Murray Water (GMW), is defined as a Water Storage Manager under the *Safe Drinking Water Act 2003* (the Act). This 2017/18 Annual Report to the Secretary of the Department of Health and Human Services (DHHS) has been prepared to satisfy the annual reporting requirements of the Act and Safe Drinking Water Regulations 2015 (Regulations).

This report demonstrates GMW's ongoing commitment to managing risks to the quality of the water the corporation delivers to water suppliers.

The report contains the following sections:

- Section 2 Roles and responsibilities of GMW under the Act and Regulations
- Section 3 Regulations component report
- Section 4 Other relevant information and activities

Further information regarding this report can be obtained by contacting the Manager Water Quality during business hours on (03) 5826 3500 or by email [reception@gmwater.com.au](mailto:reception@gmwater.com.au).

## 2. Goulburn-Murray Water Systems and Role

GMW manages the bulk water delivery and transfer for around 30% of Victoria's land area, or approximately 68,000 km<sup>2</sup> (Figure 1). GMW operates 22 storages in its region including Murray-Darling Basin Authority storages managed by Victoria. GMW's area of operation includes the Upper Murray, Ovens, King, Broken, Goulburn, Campaspe and Loddon river basins as well as the River Murray. GMW also operates an extensive network of water distribution channels, pipelines and natural carriers to deliver raw water to its customers. Customers take water from these supply systems via a pump or a gravity irrigation outlet.

Water supplied by GMW is not treated to improve its suitability for any particular use and should never be considered fit for human consumption without first being properly treated.

GMW provides bulk water in accordance with bulk entitlement orders to six urban water corporations (water suppliers):

- Coliban Water (CW)
- Central Highlands Water (CHW)
- North East Water (NEW)
- Goulburn Valley Water (GVW)
- GWM Water (GWMW)
- Lower Murray Water (LMW)

At times water may also be supplied to the three metropolitan water corporations via Melbourne Water infrastructure (see section 4.3).

The bulk entitlements provide for quantity of supply, but make no guarantee of quality. Raw (untreated) water is supplied by GMW to water suppliers for treatment and supply of drinking water to their customers in 111 towns via 69 offtake points across northern Victoria (see Appendix 1 for a list of towns supplied including water sources). An additional 23 towns are supplied with regulated water (untreated, not intended for drinking) via a further 13 offtake points.

GMW provides raw water to water suppliers in four different ways:

1. From GMW storages directly via water supplier infrastructure e.g. Nagambie from Goulburn Weir.
2. Via the outlet works of GMW storages e.g. Bendigo from Lake Eppalock.
3. Indirectly from rivers supplied by GMW storages e.g. Seymour from Goulburn River, supplied by Lake Eildon.
4. Via GMW's channel system e.g. towns in the Goulburn Murray Irrigation District.

There were no changes during 2017/18 to water supply arrangements where GMW is the Water Storage Manager.

GMW's commitment to drinking water quality management is reflected in the corporate drinking water quality policy. The objective of this policy is to ensure that GMW meets its obligations as a WSM under the Act and Regulations. It requires GMW to *address threats to safe drinking water as a WSM by preparing and implementing a risk management plan in relation to its supply of water to a water supplier.*

GMW is required to consider risk management for all of the water supply mechanisms it uses to provide water to water suppliers. This includes risks associated with:

- the catchment leading to the storage;
- the storage itself;
- the supply of water downstream of storages using natural carriers such as rivers and creeks; and
- the supply of water via channel and pipeline systems to each drinking water offtake point.

A Safe Drinking Water Act Water Storage Manager Risk Management Plan (RMP) has been prepared and implemented in accordance with the Act and Regulations and is regularly reviewed by GMW. The plan includes general requirements and considers GMW activities to manage the risks to water quality. There is also a section that specifically focuses on risks in and around GMW's storages and within GMW's irrigation districts.

GMW meets regularly with water suppliers to discuss any issues arising from the RMP or operations including incident response, blue-green algae, sharing of information and water resource management. These meetings occur both formally (two scheduled water supplier-WSM meetings each year) and informally when required.

Water suppliers are invited to participate in GMW's risk identification and review process for the storages and irrigation areas relevant to their raw water offtakes. This involves participation in a review workshop to ensure that all hazards to water quality are identified and appropriately rated, which helps to ensure a consistent understanding of hazards amongst the organisations. Risk assessment reviews are scheduled based on a calculated overall risk rating for each storage or irrigation area.

GMW also engages with representatives of the North East, Goulburn Broken and North Central catchment management authorities (CMAs) and other organisations with a role in land and/or water management to enable knowledge exchange and a coordinated approach to issues impacting water quality. Section 4.1 provides a summary of activities GMW undertakes to manage risks to water quality, including water quality monitoring.

GMW has entered into a Memorandum of Understanding with each of its seven water suppliers and Melbourne's three water retail businesses that documents commitment by the parties to work together and share information relevant to the implementation of their respective RMPs.



## 3. Regulation Components Report

### 3.1 Emergency and incident management

*Safe Drinking Water Regulation 17 – Additional details to be included in annual reports of water storage managers:*

- (a) *information about actions taken by the water storage manager in respect of each emergency, incident or event that has arisen that has affected—*
  - (i) *the quality of the water supplied for drinking purposes generally; and*
  - (ii) *the quality of the water supplied where that supply posed a risk to human health;*
- (b) *any issues that may have arisen out of the taking of the actions referred to in paragraph (a);*

#### **Section 22 Notifications**

There were no incidents that required GMW to report to DHHS under Section 22 of the Act during 2017/18.

#### **Other emergencies, issues or events**

In order to understand the incident information below, it should be noted that the catchments in northern Victorian where water is harvested are open to a wide variety of land and water based activities and are not closed to access and/or use like some of Melbourne's water supply catchments. These land use activities include agriculture, aquaculture, mining, forestry, industry, regional urban centres, townships, major transport infrastructure and recreation.

During 2017/18 GMW recorded 11 incidents that were regarded as having the potential to affect the quality of water supplied to a water supplier. GMW notified the relevant water supplier in each instance, except where the incident occurred from a water supplier's own infrastructure and there were no other water suppliers affected. Each incident was handled using GMW's Incident Response and Recovery Plan and associated procedures. This plan includes processes for communicating about, responding to and reviewing the incidents. Details of these incidents are listed in Appendix 2.

Intense rainfall in the Goulburn River catchment at the start of December 2017 resulted in a low dissolved oxygen/high turbidity event in the Goulburn River. The Goulburn Broken CMA and GVW were notified of this incident.

There were a number of raw sewage spills from water supplier infrastructure which required notification of GMW customers. The management and clean-up of these incidents was conducted by the relevant water supplier. GMW assisted with the clean-up operation following the crash of a truck carrying groceries into the Ovens River.

GMW continues to work with water suppliers and other catchment partners to minimise the impact to water quality from incidents and events that occur within GMW's area of operation

#### **Blue-green Algae Management**

Management of Blue-green Algae (BGA) by GMW is a key program that addresses a common threat to the supply of safe water. The annual Blue-green Algae Circular (the Circular) issued by the Department of Environment, Land, Water and Planning (DELWP) provides the main guidance for BGA preparedness and response.

High levels of BGA regularly occur in waterbodies within GMW's region and have the potential to affect drinking water supplies. In accordance with the Circular, GMW is the Local Water Manager (LWM) for BGA risk management in its storages and water supply network (largely open channels) and is the Regional Coordinator (RC) for BGA preparedness and response across the region. Algae in the River Murray is primarily monitored and managed by New South Wales authorities, in partnership with GMW and other Victorian agencies via the Murray Region Algal Coordinating Committee (MRACC).



GMW prepared BGA Response Plans and monitoring programs for all GMW-managed water bodies and river basins, in accordance with the protocols set out in the Circular. These plans provided guidance on the preparation for and response to BGA incidents, including notification of relevant stakeholders. GMW continued to engage with relevant stakeholders, including hosting the pre-season meeting on 24 November 2017, which was also a requirement of the Circular.

Monitoring programs focus on those sites and parameters that can affect recreation and system operations, in particular major storages and weirs. These assets are monitored at least monthly throughout the year, with frequency increasing during the summer months for many assets when the risk of harmful BGA levels being reached is higher.

A BGA Status Report is circulated at least monthly to a broad range of stakeholders including the DHHS, DELWP, water suppliers, CMAs and local government. The report contains the latest BGA laboratory results for GMW's storages and key water supply assets.

### **BGA Warnings**

In 2017/18, five BGA warnings were issued based on recreational guidelines. The warning issued for Hepburns Lagoon is not included in this total as it was ongoing from the previous reporting period. Table 1 summarises the BGA warnings issued by GMW in 2017/18 or already present and the water suppliers notified.

**Table 1: Blue Green Algae Recreational Warnings Issued by GMW 2017/18**

Basin/System	Location	Warning dates (duration)	Water Supplier (WS) notified
Campaspe River Basin	Lake Eppalock	15/12/17 – 22/3/18 97 days 27/6/2018 – 9/8/17 43 days	Coliban Water
Loddon River Basin	Cairn Curran Reservoir	15/12/17 – 9/8/18 237 days	Coliban Water
Loddon River Basin	Hepburns Lagoon	9/2/2017 – ongoing <sup>^</sup>	No WS impacted
Loddon River Basin	Tullaroop Reservoir	23/5/18 – 22/6/18 30 days	Central Highlands Water
Loddon River Basin	Laanecoorie Reservoir	7/2/18 – 6/6/18 119 days	Coliban Water
Torrumbarry Irrigation Area	Lake Charm	6/2/18 – 16/3/18 38 days	No WS impacted

<sup>^</sup>Recreational warning was ongoing at the time of preparation of this report – August to September 2018.

In accordance with the 2017/18 BGA response plans, GMW advised DELWP and DHHS via the BGA status report of any BGA levels that had the potential to affect public health through drinking water or recreational contact. DHHS and DELWP were also notified via telephone and email when the concentration of BGA exceeded a recreational trigger and/or widespread BGA scums were observed.

BGA factsheets and information on the current BGA warnings for GMW's storages and irrigation areas can be found on the BGA Warnings webpage. During 2017/18 the webpage was upgraded to include a map and more detailed background information on BGA:

<http://www.gmwater.com.au/bluegreenalgae-alert/>

In addition, the public can access warning information by calling GMW's BGA Hotline on (03) 5826 3785, by contacting GMW directly during business hours on 1800 013 357 or by emailing [reception@gmwater.com.au](mailto:reception@gmwater.com.au)

### **3.2 Summary of exemptions and undertakings**

*Safe Drinking Water Regulation 17 –*

*(c) A summary of every written undertaking by the water storage manager accepted by the Secretary under section 30 of the Act.*

*(f) Details of any exemption granted to the water storage manager under section 8 of the Act and any condition imposed in relation to any exemption.*

There were no exemptions or undertakings in place with DHHS during 2017/18.

### **3.3 Risk Management Plan audit findings and issues raised**

*Safe Drinking Water Regulation 17 –*

*(d) A summary of the findings of the most recent risk management plan audit and any issues that the approved auditor raised during the risk management plan audit.*

The Secretary to the Department of Health and Human Services required GMW to undertake an audit of its risk management plan during the 2017/18 reporting period.

The regulatory audit conducted in October 2017 found GMW to be compliant under Section 8 of the Act, see Appendix 3 for Audit Certificate. The auditors identified ten opportunities for improvement (OFIs) which GMW accepted and has developed an action plan for, see Appendix 4.

Overall, the auditors were “impressed with the level of water quality risk buy-in across the organisation” and reported that “all roles were well-understood and it is clear that GMW’s commitment to training has paid off in the high level of understanding exhibited by staff members.”

All of the ten opportunities for improvement identified in the 2016 regulatory audit have been addressed.

### **3.4 Water treatment processes**

*Safe Drinking Water Regulation 17 –*

*(e)(i) a summary of the process by which the water supplied by the water storage manager is disinfected or treated and any other processes applied to the water by the water storage manager, and any issues arising out of the application of those processes; and*

*(e)(ii) a list of all the chemicals and other substances, and any processes, used by a water storage manager to disinfect or treat the water supplied, or to be supplied, by it for drinking purposes;*

GMW does not disinfect, treat or process any water supplied to its customers. All water supplied by GMW is not suitable for direct human consumption. All GMW customers are advised of this (see also Section 4.2).

GMW sometimes applies herbicides to vegetation adjacent to channels used to supply water suppliers. All herbicide application is undertaken in accordance with GMW’s operating guidelines, including having appropriately trained staff, notification of the relevant water supplier and adherence to product labels and minor use permits.

GMW developed a Herbicide Management Communication Strategy that was provided to all water suppliers in June 2017 and accepted by them as appropriate. The strategy includes a list of

herbicides used by GMW, where they are applied, application methods used and the requirement for notification of water suppliers for each herbicide and application criterion.

When necessary (locust plagues, for example), GMW only uses pesticides that are suitable for use adjacent to waterways and in a manner consistent with current best management practices and regulations.

## 4. Other Relevant Information

### 4.1 Other activities

GMW has completed individual risk assessments for each GMW storage and irrigation area as well as an organisation-wide risk assessment. All assessments are regularly reviewed. GMW continues to implement key programs to manage the identified risks to water quality. Examples of the types of activities undertaken by GMW are summarised in Table 3.

**Table 2: GMW Key Programs**

Program	2017/18 Activities/Achievements
Blue green algae management	All warnings were managed in accordance with DELWP BGA Circular, including notification to relevant water suppliers and sharing of test results.
Water quality monitoring	Water quality monitoring and analysis was undertaken at 15 storages. This data was used to prepare quarterly exception reports and the annual Major Storages Water Quality report, which were sent to relevant stakeholders, including water suppliers.
External Stakeholder controls	Continued engagement with regional and state catchment partners including implementation of Regional Catchment Strategies and review of State Environment Protection Policies.
GMW staff training	18 staff training sessions were held reaching 161 staff. The internal factsheet was distributed to all staff in these sessions.
Best Management Practices	The Best Management Practice Register was kept up to date.
Statutory Planning	1441 applications reviewed from 28 local government authorities and DELWP.
Land Management	Review of lease conditions as required. Land and water inspections completed and records of these inspections maintained. Some review required to ensure evidence of club site audits is maintained.
Land and On Water Management Plans	Implementation and review (where required) of the existing 13 Land and On Water Management plans, including consultation with water suppliers and other key stakeholders. Some examples of works completed during the reporting period include: <ul style="list-style-type: none"> <li>• 20 million trees project plantings at Yarrowonga Weir and Hume Dam</li> <li>• Large areas of storage perimeter fencing to control stock at Lake Buffalo</li> <li>• Feral animal management programs</li> <li>• Lake Eppalock recreational facility upgrades including toilet block replacement, new BBQs, shelter facilities and access pathways.</li> </ul>
Lake Eildon houseboats and on-water services	Ongoing management of on-water fuel and sewage facilities, houseboat inspections undertaken in accordance with schedule and details of inspections documented.
Weed Management	All herbicide applications conducted in accordance with the GMW Herbicide Operating Manual, including notification to Water Suppliers when required. Update of water supplier offtake locations into GMW asset management database (as well as GIS) to allow for more organisation-wide identification of offtake points to factor in water supplier notification when required.

Program	2017/18 Activities/Achievements
Environmental Management System	GMW maintained its ISO14001 accreditation. Continuation of compliance audits conducted by GMW staff in accordance with the HSE Audit Schedule. Staff continuing to complete annual online HSE refresher.
Incident Response	Mandatory completion of online training module "Incident Response and Emergency Management" required for all GMW staff.
GMW Operations including surveillance, fire management	Various activities including channel and storage erosion control and prevention works, fencing, licensing and monitoring of activities on GMW land. GMW activities are conducted in accordance with the approved EMS. Notification to relevant water supplier if water quality impacted.
Water Resource Management	Worked with LMW to ensure water returned to the Little Murray River from Lake Boga did not adversely impact the water treatment process for the towns supplied by Swan Hill water treatment plant.

## 4.2 *Advising People about Non-potable Water Supplies*

All water supplied by GMW is not suitable for human consumption or related uses without first being properly treated. GMW has a Customer Information Statement to advise customers of the non-potable nature of the water supplied. This statement was reviewed and updated in May 2018. It is periodically provided to all GMW customers and is located on the GMW website: [www.gmwater.com.au](http://www.gmwater.com.au).

Customer invoices include a statement regarding the non-potable nature of the water supplied by GMW.

## 4.3 *Melbourne Water*

The Sugarloaf (or North-South) Pipeline was constructed to supply water from the Goulburn River downstream of Lake Eildon to Melbourne Water's Sugarloaf Reservoir (and subsequently to Yarra Valley Water, City West Water, and South East Water). The pipeline has not been utilised since November 2010. GMW's agreement with Melbourne Water and Bulk Entitlements with the three retail water businesses is still in place. GMW has therefore continued to provide the opportunity for Melbourne Water to be involved in GMW's identification and management of risks to water quality within the Goulburn catchment.

# 5. Further Information

This report and further information is available from our website <http://www.g-mwater.com.au> or by contacting:

Goulburn-Murray Water  
40 Casey Street  
PO Box 165  
Tatura VIC 3616

Free call: 1800 013 357  
Standard call: (03) 5826 3500  
Fax: (03) 5826 3334  
Email: [reception@gmwater.com.au](mailto:reception@gmwater.com.au)

# Appendix 1 - Towns supplied where GMW is the water storage manager

Water Supplier Offtakes - GMW as Water Storage Manager*			
Water System/ Irrigation Area (IA)	Supply Source	Water Treatment Plant	Towns Supplied
<b>Central Highlands Water</b>			
Loddon	Tullaroop Reservoir	MARYBOROUGH	Maryborough, Carisbrook, Bet Bet, Talbot
Bullarook	Newlyn Reservoir	BALLARAT	Ballarat
<b>Coliban Water</b>			
Campaspe	Lake Eppalock	BENDIGO	Bendigo, Axedale, Huntly, Marong, Raywood, Sebastian
Rochester IA	Waranga Western Channel (Colbinabbin)	BENDIGO	Bendigo, Axedale, Huntly, Marong, Raywood, Sebastian
Pyramid Hill IA	PH Channel No.3	BOORT	Boort
Loddon	Loddon River (Bridgewater offtake)	BRIDGEWATER	Bridgewater, Inglewood
Torrumbarry IA	Gunbower Creek (Cohuna offtake)	COHUNA	Cohuna
Pyramid Hill IA	PH Channel No.1	Nil – regulated <sup>#</sup>	Dingee
Murray	River Murray (Echuca offtake)	ECHUCA	Echuca
Campaspe	Campaspe River (Goornong offtake)	GOORNONG	Goornong
Torrumbarry IA	Taylor's Creek	GUNBOWER	Gunbower
Campaspe	Lake Eppalock	HEATHCOTE	Heathcote, Tooborac
Pyramid Hill IA	East Loddon Pipeline	Nil – regulated <sup>#</sup>	Jarklin
Loddon	Loddon River (Laanecoore offtake)	LAANECOORIE	Laanecoore, Bealiba, Dunolly, Tarnagulla
Torrumbarry IA	T 1 Channel	LEITCHVILLE	Leitchville
Torrumbarry IA	Gunbower Creek (Leitchville offtake)	LEITCHVILLE	Leitchville
Rochester IA	Waranga Western Channel (No 24 Channel – spur off Waranga Western Channel)	LOCKINGTON	Lockington
Pyramid Hill IA	PH 10/1 Channel	Nil – regulated <sup>#</sup>	Macorna
Pyramid Hill IA	Mitiamo spur off the Pyramid Hill No. 1 Channel	Nil – regulated <sup>#</sup>	Mitiamo
Pyramid Hill IA	Waranga Western Channel (Mysia offtake)	Nil – regulated <sup>#</sup>	Mysia
Pyramid Hill IA	PH Channel No. 1 (12/5/1)	PYRAMID HILL	Pyramid Hill

### Water Supplier Offtakes - GMW as Water Storage Manager\*

Water System/ Irrigation Area (IA)	Supply Source	Water Treatment Plant	Towns Supplied
Rochester IA	Waranga Western Channel (Rochester offtake)	ROCHESTER	Rochester
Campaspe	Campaspe River (Rochester offtake)	ROCHESTER	Rochester
Pyramid Hill IA	East Loddon Pipeline	SERPENTINE	Serpentine
Goulburn Valley Water			
Goulburn	Goulburn River (Alexandra offtake)	ALEXANDRA	Alexandra, Eildon, Thornton
Murray	River Murray (Barmah offtake)	BARMAH	Barmah
Goulburn	Lake Eildon	BONNIE DOON	Bonnie Doon
Goulburn	Goulburn River (Tallarook offtake)	BROADFORD	Broadford, Waterford Park
Murray	River Murray (Cobram offtake)	COBRAM	Cobram, Strathmerton, Yarroweyah
Rochester IA	Waranga Western Channel (Colbinabbin offtake)	COLBINABBIN	Colbinabbin
Rochester IA	Waranga Western Channel (Corop offtake)	Nil - regulated <sup>#</sup>	Corop
Shepparton IA	East Goulburn Main Channel	DOOKIE	Dookie
Central Goulburn IA	CG 12/9 Channel	GIRGARRE	Girgarre
Goulburn	Lake Nagambie (Baxters Road offtake)	Nil – regulated <sup>#</sup>	Goulburn Weir
Murray Valley IA	MV 7/3 Channel	KATAMATITE	Katamatite
Shepparton IA	SH 2/24 Channel (piped)	KATANDRA WEST	Katandra West
Goulburn	Lake Nagambie (Kirwans Bridge offtake)	Nil – regulated <sup>#</sup>	Kirwans Bridge
Central Goulburn IA	CG 9 Channel	KYABRAM	Kyabram, Merrigum
Goulburn	Goulburn River (Molesworth offtake)	Nil – regulated <sup>#</sup>	Molesworth
Goulburn	Goulburn River (Murchison offtake)	MURCHISON	Murchison
Goulburn	Lake Nagambie (Nagambie offtake)	NAGAMBIE	Nagambie
Murray Valley IA	Broken Creek	NATHALIA	Nathalia
Murray Valley IA	MV 6/6 Channel	NUMURKAH	Numurkah, Wunghnu
Murray Valley IA	MV 9/9/6 Channel	PICOLA	Picola
Central Goulburn IA	Waranga Basin	RUSHWORTH	Rushworth
Goulburn	Goulburn River (Seymour offtake)	SEYMOUR	Seymour, Avenel, Tallarook, Trawool
Goulburn	Goulburn River (Shepparton offtake)	SHEPPARTON	Shepparton, Congupna, Tallygaroopna, Toolamba, Mooroopna

### Water Supplier Offtakes - GMW as Water Storage Manager\*

Water System/ Irrigation Area (IA)	Supply Source	Water Treatment Plant	Towns Supplied
Central Goulburn IA	CG 1/12/9 Channel	STANHOPE	Stanhope
Central Goulburn IA	CG 3/5A Channel	TATURA	Tatura
Central Goulburn IA	CG 2/5/6 Channel	TATURA	Tatura
Central Goulburn IA	CG 28/9 Channel	TONGALA	Tongala
<b>Grampians Wimmera Mallee Water</b>			
Murray	River Murray (Nyah offtake)	Nil - regulated <sup>#</sup>	Berriwillock, Chillingollah, Chinkapook, Waichie
Murray	River Murray - Piangil Pump Station	MANANGATANG	Manangatang
Loddon Valley IA	4/1 Channel (Normanville Pipeline)	QUAMBATOOK	Quambatook
Murray	River Murray - Swan Hill (Pental Island)	SEA LAKE	Sea Lake
Murray	River Murray - Swan Hill (Pental Island)	Nil – regulated <sup>#</sup>	Culgoa, Lalbert, Nullawil, Ultima
Murray	River Murray (Wemen offtake)	OUYEN, UNDERBOOL	Ouyen, Underbool
Murray	River Murray (Wemen offtake)	Nil – regulated <sup>#</sup>	Nandaly, Patchewollock, Speed, Tempy, Walpeup
<b>Lower Murray Water</b>			
Murray	River Murray (Mildura offtake)	MILDURA & MILDURA WEST	Mildura, Mildura West, Irymple, Merbein
Murray	River Murray (Mildura West offtake)	MILDURA & MILDURA WEST	Mildura, Mildura West, Irymple, Merbein
Loddon	Loddon River (Kerang alt. offtake)	KERANG	Kerang
Murray	River Murray (Koondrook offtake)	KERANG, KOONDROOK	Kerang, Koondrook
Torrumbarry IA	Torrumbarry 14/2 Channel	KERANG	Kerang
Murray	River Murray (Murrabit offtake)	MURRABIT	Murrabit
Torrumbarry IA	Torrumbarry 2/11/4 Channel	MURRABIT	Murrabit
Torrumbarry IA	Kangaroo Lake (Mystic Park Non Potable offtake)	Nil – regulated <sup>#</sup>	Mystic Park
Murray	River Murray (Piangil town offtake)	PIANGIL	Piangil
Murray	River Murray (Red Cliffs offtake)	RED CLIFFS	Red Cliffs
Murray	River Murray (Robinvale offtake)	ROBINVALE	Robinvale
Murray	River Murray (Swan Hill offtake)	SWAN HILL	Lake Boga, Nyah, Nyah West, Swan Hill, Woorinen South

<b>Water Supplier Offtakes - GMW as Water Storage Manager*</b>			
<b>Water System/ Irrigation Area (IA)</b>	<b>Supply Source</b>	<b>Water Treatment Plant</b>	<b>Towns Supplied</b>
<b>Melbourne Water</b>			
Goulburn	Goulburn River (via Sugarloaf Pipeline at Killingworth)	MELBOURNE	Melbourne
<b>North East Water</b>			
Murray	Lake Hume	BELLBRIDGE	Bellbridge
Murray	Mitta Mitta River (Dartmouth offtake)	DARTMOUTH	Dartmouth
Murray	Mitta Mitta River (Eskdale offtake)	ESKDALE	Eskdale
Ovens	Ovens River (confluence with King River)	WANGARATTA	Wangaratta, Glenrowan
Ovens	King River (Moyhu offtake)	MOYHU	Moyhu
Ovens	King River (Oxley offtake)	OXLEY	Oxley
Ovens	River Murray (Wahgunyah offtake)	WAHGUNYAH	Wahgunyah, Rutherglen
Murray	Lake Hume / Mitta Mitta River	TALLANGATTA	Tallangatta
Ovens	Shallow groundwater bore adjacent King River	WHITFIELD	Whitfield
Murray	Wodonga Creek (an anabranch of the Murray River)	WODONGA	Wodonga, Bandiana, Baranduda, Bonegilla, Kiewa, Barnawartha, Chiltern, Springhurst
Murray	Lake Mulwala	YARRAWONGA	Yarrawonga, Bundalong, Devenish, St. James, Tungamah, Goorambat

\*All water supplied by GMW is raw i.e. not treated.

#Regulated supply as defined under the SDWA i.e. water supplied by Water Suppliers that is not intended for drinking but could be mistaken as drinking water.



## Appendix 2 - Environmental incidents reported during 2017/18 related to water quality

Risk #	Date	Incident Description	Location	Action undertaken (by GMW) (WS = Water Supplier)
IRIS3094	26/7/2017	Approx. 100 kL raw sewage and stormwater spilled into Bendigo Creek, Kangaroo Flat.	Bendigo Creek, Kangaroo Flat	GMW Diversions unit was advised and no further action was considered necessary as Coliban Water managed incident. It was unnecessary to notify Coliban Water as they had discovered the incident. Sewage was educted from the creek and EPA was involved in the water quality monitoring.
IRIS3256	4/12/2017	Approx. 400 kL raw sewage spilled into Creswick Creek from Creswick wastewater treatment plant pump-station transfer line to Ballarat north wastewater treatment plant.	Creswick Creek, Creswick	GMW Diversions unit was advised of the spill, and then notified GMW customers. Central Highlands Water detected and managed the incident and no other WS were at risk of being impacted. Sewage was educted from the Creek and CHW managed water quality monitoring.
IRIS3257	5/12/2017	Low dissolved oxygen levels in Goulburn River following large rainfall event.	Goulburn River, Tabilk	GMW notified both Goulburn Valley Water and Goulburn Broken CMA.
IRIS3274	14/12/2017	Truck carrying 40 tonnes of groceries crashed off a Hume Freeway bridge into the Ovens River.	Ovens River, Wangaratta	All authorities notified, GMW provided assistance with the containment and clean-up of fuel and groceries.
IRIS3278	15/12/2017	High levels of BGA detected in Cairn Curran Reservoir: 15/12/17 – 9/8/18, 237 days.	Cairn Curran Reservoir	Actions completed in accordance with BGA Alert 3 Checklist – Coliban Water notified.
IRIS3279	15/12/2017	High levels of BGA detected in Lake Eppalock: 15/12/17 – 22/3/18, 97 days.	Lake Eppalock	Actions completed in accordance with BGA Alert 3 Checklist – Coliban Water notified.
IRIS3298	12/1/2018	High levels of BGA detected in Gum Lagoon: 12/1/18 – 21/3/18, 68 days.	Gum Lagoon	Actions completed in accordance with BGA Alert 3 Checklist – Coliban Water notified.
IRIS3318	7/2/2018	High levels of BGA detected in Lake Charm: 6/2/18 – 16/3/18, 38 days.	Lake Charm	Actions completed in accordance with BGA Alert 3 Checklist – No WS impacted.

Risk #	Date	Incident Description	Location	Action undertaken (by GMW) (WS = Water Supplier)
IRIS3319	7/2/2018	High levels of BGA detected in Laanecoorie Reservoir: 7/2/18 – 6/6/18, 119 days.	Laanecoorie Reservoir	Actions completed in accordance with BGA Alert 3 Checklist – Coliban Water notified.
IRIS3385	4/4/2018	Approx. 120 kL raw sewage spilled into Campaspe River at Echuca via a sewer inspection pit which flowed to a stormwater drain.	Campaspe River, Echuca	GMW Diversions was advised who then notified GMW customers and Coliban Water. The EPA was involved with the management of this incident.
IRIS3418	23/5/2018	High levels of BGA detected in Tullaroop Reservoir: 23/5/18 – 22/6/18, 30 days.	Tullaroop Reservoir	Actions completed in accordance with BGA Alert 3 Checklist – Central Highlands Water notified.
IRIS3452	27/6/2018	High levels of BGA detected in Lake Eppalock: 27/6/18 – 9/8/18, 43 days.	Lake Eppalock	Actions completed in accordance with BGA Alert 3 Checklist – Coliban Water notified.
-	-	There were 3 other potential water quality incidents recorded that did not pose a risk to water quality supplied to WS i.e. no water supplier offtakes downstream that could be impacted by the incident. These incidents all were vehicle/boat accidents with the potential for oil and fuel spills.	Various (storage/waterway/channel/drain)	Various <i>Note these incidents were not included in summary section 3.1 as they did not have the potential to impact WS.</i>
-	-	13 incidents where more than 5 animals have been found in GMW managed water bodies.  22 incidents where less than 5 animals have been found in GMW managed water bodies.	Various (storage/waterway/channel/drain)	All carcasses removed from waterway and buried. Weekly inspections. No further action was required. <i>Note these incidents were not included in summary section 3.1</i>

^Recreational warning was ongoing at the time of preparation of this report – August to September 2018.

# Appendix 3 - 2017 Audit Certificate

## Audit Certificate

Regulation 10

Schedule 1—Risk management plan audit certificate

Safe Drinking Water Regulations 2015

Certificate Number:	GMW 2017-01
Audit period:	12 May 2016 to 2 November 2017
To:	Mr Greg Smith Manager Water Quality, Customer Operations, Goulburn-Murray Water PO Box 165 Tatura, Victoria 3616
Australian Business Number (ABN):	46 761 336 846

I, Dr Annette Davison, after conducting a risk management plan audit of the water supplied by Goulburn-Murray Water, am of the opinion that Goulburn-Murray Water has complied with the obligations imposed by section 8(1) of the *Safe Drinking Water Act 2003* during the audit period.

Signed: 

Date: 2 November 2017

## Appendix 4 - GMW's action plan to address opportunities for improvement identified during the 2017 SDWA audit

OFI & response	Status
<p><i>OFI 1. Clarify the review details and records for documents, in particular documents that have been reviewed but do not require change – an example is the Safe Drinking Water Policy.</i></p>	
<p>GMW response: The requirements for review of GMW policies and procedures have been discussed with GMW Corporate Secretary. SDWA documentation has been updated to provide clear guidance on when reviews are due and completed. This information is included on the cover of each document or in the document history tables. It is also provided in the Process Improvement Plan.</p>	Complete
<p><i>OFI 2. Consider adding the “role” of participants at the risk review stating exactly what information each party contributes e.g. blue-green algal experience, operator experience etc.</i></p>	
<p>GMW will:</p> <ol style="list-style-type: none"> <li>1. Document the role/experience of each review participant in the “reviewed by” section of risk assessment documents for future reviews.</li> <li>2. Retrospectively include these details into completed risk review documents.</li> </ol>	Complete
<p><i>OFI 3. Higher level position descriptions could benefit from inclusion of SDWA Water Storage Manager responsibilities for that position (noting that Water Act 2007 (Cth) responsibilities are currently included in the Position Description Manager Water Resources but not specifically the SDWA responsibilities (although implicit)).</i></p>	
<p>GMW will consider including a dot point under “Key Accountabilities” in position descriptions at the time of next performance reviews.</p>	Under consideration
<p><i>OFI 4. In IRIS, ensure that the field “Other authorities who were contacted and when” includes complete information and not just that “Water supplier has been notified”.</i></p>	
<p>Following the audit, managers were reminded of the need to include sufficient detail in IRIS reports. All future SDWA training sessions will reinforce the importance of including more detail in IRIS reports, particularly names of people contacted in other agencies and date/time.</p>	Complete
<p><i>OFI 5. Documentation of inputs to the storage sampling program number of samples per year could be improved i.e. description and clarification of factors, other than risk assessment, which may result in an increase in sample numbers compared to expected numbers based on applying the standard framework.</i></p>	
<p>Manager Water Quality and Water Quality Coordinator have reviewed the Blue-green Algae risk assessment and included additional comments for justification.</p>	Complete
<p><i>OFI 6. GMW should ensure that the training and competency details are updated as soon as practically possible to do so, as well as include a note in the register if an expiry has occurred but there is a plan in train to address the expiry i.e. evidence to show that currency has not just been allowed to lapse.</i></p>	
<p>Managers were reminded of the need to keep training and associated records up to date following the audit. We will continue to remind staff of the need for up to date training records in SDWA awareness sessions and as other opportunities arise.</p>	Complete

<i>OFI 7. Given that GMW undertakes so much internal training, GMW should consider having all its trainers complete Certificate IV in Training and Assessment, to help support its commitment to training programs and trainers.</i>	
Given that the training provided is more of a short awareness session of 20 minutes' duration, it was considered difficult to justify investing in Certificate IV in Training and Assessment for Water Quality staff as the cost and time commitment required is quite high (varying between course providers). It was considered that Water Quality staff being provided with guidance (coaching and written material) from GMW staff who have completed Certificate IV in Training and Assessment (or similar) would be sufficient to enhance the delivery of SDWA awareness "training".	In progress
<i>OFI 8. Include an extra column on the training attendance sheet so that the role of the trainee can be recorded, not just the group they belong to.</i>	
Amend training attendance sheet for use at future training sessions.	Complete
<i>OFI 9. Gross pollutant traps and stormwater drains are mapped on shire maps but not on GMW's layers – it may be useful to partner with local councils to develop and implement data sharing and other programs to facilitate understanding and management of catchment-generated water quality risks.</i>	
GMW has investigated the feasibility of mapping this information; however, given that gross pollutant traps do not remove the contaminants of concern (as listed in the SDW Regulations 2015), it was concluded this will not add value to the GMW mapping system and therefore will not be progressed.	Complete
<i>OFI 10. Formalise and implement a trigger for when advice should be sought from the Water Quality Group, when assessing planning applications.</i>	
Internal teams will review procedures to enable triggers to be agreed upon and formalised.	In progress