

River Murray Flow Report and Water Resources Update



Report #37/2020

Issued 10:00 am 11 September 2020

This supersedes the previous flow report issued by the Department for Environment and Water (DEW) on 4 September 2020. The next flow report will be provided on Friday 18 September 2020.

In this report, for ease of representation, large volumes of water are expressed in gigalitres (GL), while smaller volumes are expressed in megalitres (ML). One GL is equal to 1 000 ML.

QUARTERLY METER REPORTING

All River Murray water users must ensure that they have not used more water than is available on their account by the end of each quarter. This is to help ensure that water can be reliably delivered to all River Murray water users in South Australia. A penalty for excess water use will apply if you have used more water than the volume of water available on your account at close of business on **30 September 2020**.

In order to remain within your available water allocation, you can:

- Stop taking water when you reach your allocation limit;
- Before you reach your allocation limit, trade water allocation onto your water account to cover your additional water needs. To comply with the *Landscape South Australia Act 2019*, to ensure that you do not exceed your available allocation and to avoid receiving a penalty charge, you need to trade water allocation onto your account before you take water above your current allocation limit; or
- Investigate whether water efficiency measures could be implemented for your property to decrease your demand for water.

Water users are encouraged to closely monitor their water use throughout the year and remain within their water allocations. You can submit an online meter reading at any time and elect to receive a water usage advice statement (similar to a bank statement) by email or SMS. This helps ensure you are monitoring water use and remaining within your available water allocation.

For more information, please see the [DEW website](#) or contact the Berri water licencing office via telephone: (08) 8595 2053 or email: DEW.waterlicensingberri@sa.gov.au

2020-21 WATER ALLOCATIONS

The volume of water available to South Australia in 2020-21 has now enabled South Australian River Murray allocations for Class 3 (High Security) and Class 8 water access entitlements to reach 100 % for the 2020-21 water year.

Further detail about the Private Carryover policy is outlined in the [Water Allocation Plan for the South Australian River Murray](#).

To stay up to date with all the latest information, please visit our [website](#).

COORONG INFRASTRUCTURE OPTIONS

The consultation process on potential infrastructure options to support the recovery of South Australia's iconic Coorong has now closed. DEW would like to thank all members of the community who provided feedback.

DEW is currently finalising the shortlisting of options for further investigation based on feedback from the consultation process. A detailed feasibility study will then be undertaken on these options. The final shortlisted options will be provided soon, along with information on the next phase in the consultation process.

For more information please visit www.environment.sa.gov.au/topics/coorong/get-involved or contact the project team at projectcoorong@sa.gov.au

WATER RESOURCES UPDATE

During August 2020, the total River Murray System inflow was approximately 753 GL, which is about 47 % of the August long-term average of 1 592 GL. During August 2020, the total Menindee Lakes inflow was approximately 10.6 GL, which is approximately 6 % of the August long-term average of 182 GL.

The flow to South Australia during August 2020 was approximately 261 GL, which is about 30 % of the August long-term average of 860 GL. The flow comprised of Entitlement Flow (including environmental water on SA licence), unregulated flow, environmental water and trades.

MANAGEMENT OF SOUTH AUSTRALIA'S DEFERRED WATER

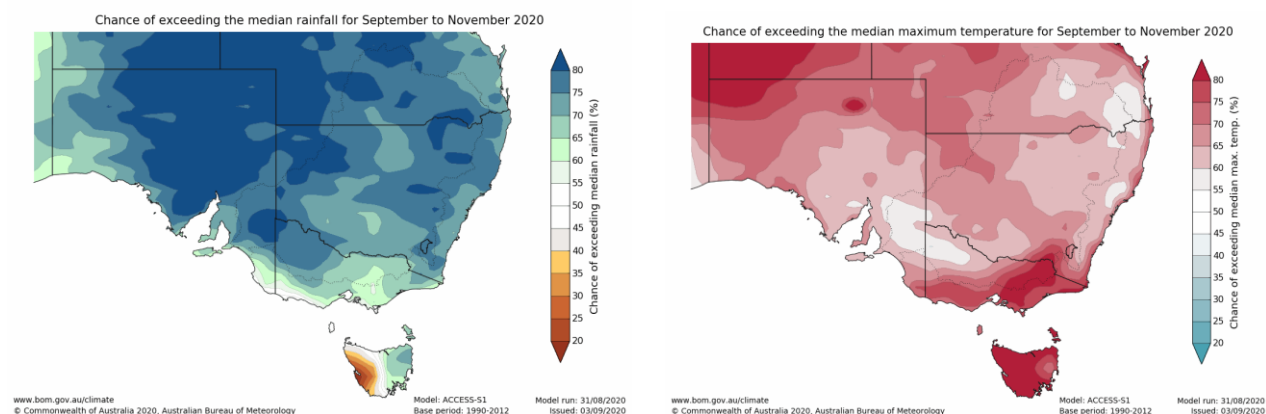
The Murray-Darling Basin Authority confirmed that on 1 September 2020 South Australia had 339.3 GL of deferred water held in storage in the Murray-Darling Basin. The following table identifies the storage in which it is held and the purpose. Volumes stored are adjusted for net evaporation losses and spills until delivered to South Australia.

At 1 September 2020				
Purpose	Lake Victoria (GL)	Hume (GL)	Dartmouth (GL)	Total (GL)
*CHWN	0.0	0.0	237.9	237.9
Private Carryover	0.0	0.0	101.4	101.4
Total	0.0	0.0	339.3	339.3

*Critical Human Water Needs (CHWN)

RAINFALL AND TEMPERATURE OUTLOOK

The latest Bureau of Meteorology weather outlook for the Murray-Darling Basin from September to November 2020 indicates that the region is expected to receive above average rainfall and average to above average temperatures, depending on the location in the Basin.



The El Niño-Southern Oscillation (ENSO) and Indian Ocean Dipole (IOD) currently remain neutral.

The ENSO outlook has changed to La Niña ALERT. La Niña is typically associated with an increased likelihood of above average winter-spring rainfall across southern and eastern Australia.

The IOD has been negative for three weeks and needs to remain so for eight weeks to be considered a negative event. A number of models are forecasting that there will be a negative IOD during spring. A negative IOD is associated with increased likelihood of above average winter-spring rainfall across southern and eastern Australia.

The latest Bureau of Meteorology outlook information can be accessed [here](#).

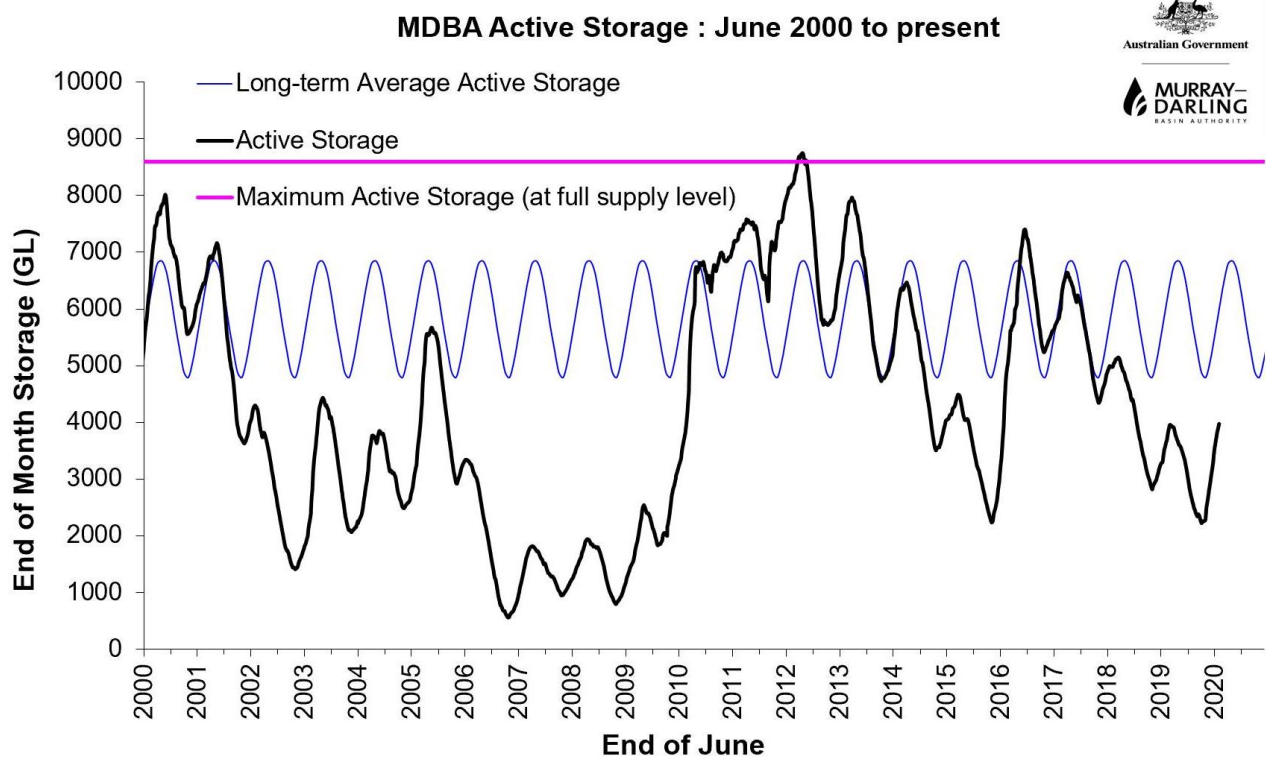
STORAGE VOLUMES

Murray-Darling Basin Storage Volumes

Storage	Full Supply Volume (GL)	8/9/2020 (GL)	8/9/2019 (GL)	Long-term average (end of Sept) (GL)
Dartmouth	3 856	2 138 (55%)	2 274 (59%)	
Hume	3 007	1 922 (64%)	1 291 (43%)	
Lake Victoria	677	647 (96%)	570 (84%)	
Menindee Lakes	*1 731	460 (27%)	14 (1%)	
TOTAL	9 271	5 167 (56%)	4 149 (45%)	7 458 (80%)

*Menindee Lakes can be surcharged to 2 015 GL

The following graph has been provided by the Murray-Darling Basin Authority. The graph shows the volume of water held in the Murray-Darling Basin storages from June 2000 to now and the long-term average storage for the same period.



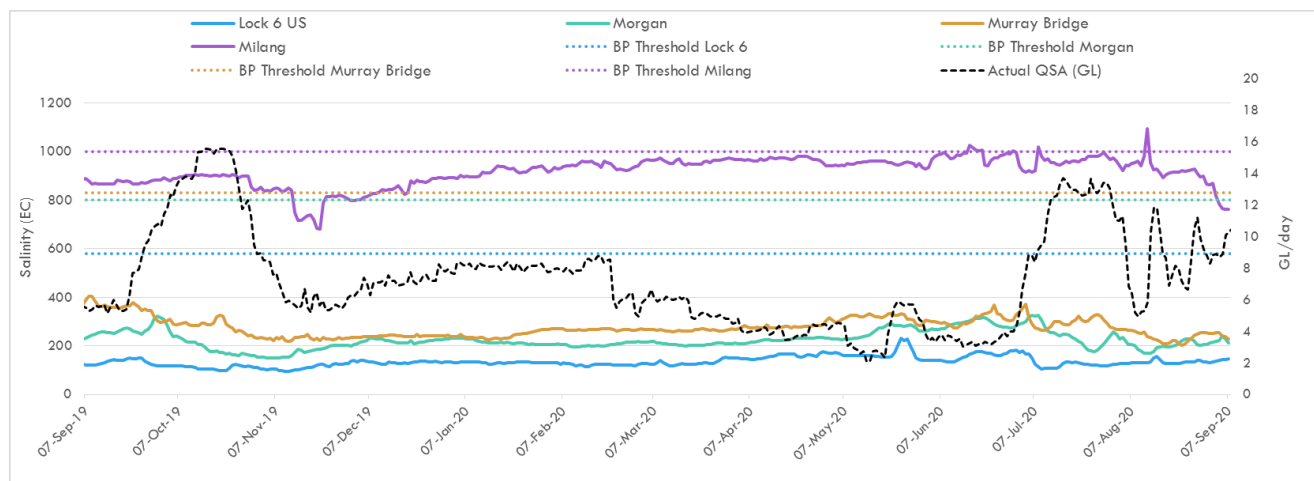
WATER QUALITY - Salinity

A number of targets are identified under the Murray-Darling Basin Plan, which all Basin jurisdictions must have regard to in managing River Murray flows. The targets for real-time salinity are identified below. Salinity should not exceed these values for 95 % of the time:

- 580 EC at Lock 6
- 800 EC at Morgan
- 830 EC at Murray Bridge
- 1 000 EC at Milang.

The following graph shows the salinity at these locations and the flow to South Australia (QSA) from September 2019 to September 2020. The dashed-lines identify the Basin Plan (BP) thresholds for the corresponding colour coded location.

SA River Murray Daily Average Salinity



FLOW OUTLOOK

The flow at the South Australian border is approximately 11.2 GL/day and will decrease to around 9.2 GL/day during the coming week. It comprises:

- full September Entitlement Flow (4.5 GL/day);
- plus unregulated flow;
- plus water for the environment (see below *Water for the Environment*); and
- interstate trade adjustments.

South Australia is receiving unregulated flow as a result of:

- recent rainfall events and inflows across catchments below Hume Reservoir; and
- the volume held in Lake Victoria.

The flow over Lock 1 is approximately 9.5 GL/day and will increase to around 10 GL/day during the coming week, depending on weather conditions and extractions.

It is important to note that flow forecasts in this advice are based on the information available at the time of preparation. Advice may change as new gauging information becomes available or due to rainfall events or changed operations upstream.

WATER FOR THE ENVIRONMENT

South Australia is receiving small volumes of water for the environment from South Australia's environmental water allocation and from return flow from watering actions in Victorian rivers. River flows are being boosted by recent rainfall in upstream catchments. These flows will provide a range of benefits from where the rain falls, all the way to the Coorong.

Specific benefits include:

- providing a productive, food-rich environment for fish and birds;
- removing excess salt from the River Murray (see more information [here](#));
- deliver a range of outcomes to wetlands in the Riverland via arrangements with Renmark Irrigation Trust;
- maintain water quality, salinity and water levels below critical thresholds in the River Murray channel, Lower Lakes and Coorong, including through targeted releases at the barrages when weather conditions are best suited to push water down the Coorong (see more information [here](#)); and
- maintain good connection from the Coorong to the upstream areas of the River Murray and its tributaries to enable fish migration and movement, including for diadromous lamprey which will be migrating into the river from the Southern Ocean for spawning over the next few months;
 - Monitoring is underway to investigate the migration of pouched and short-headed lamprey travelling from the Southern Ocean upstream to the River Murray Channel to spawn. As at 2 September a total of 93 pouched and 3 short-headed lamprey have been caught moving through the fishways at the barrages; and the majority have been tagged with PIT tags so their passage can be detected via receivers along the River Murray.

MURRAY MOUTH

Dredging operations at the Murray Mouth commenced on 9 January 2015 to maintain connectivity (exchange of water) between the Coorong and the Southern Ocean. At 6 September 2020, a total of approximately 6 273 743 cubic metres of sand had been removed by dredging operations.

Two dredges are operating between the Goolwa and Tauwitchere channels 24 hours a day, 7 days a week.

Barrage releases combined with dredging have helped to maintain connectivity of the Murray Mouth.

There are a number of shallow zones in and adjacent to the Murray Mouth. Mariners should use caution when traversing the mouth area, follow all directions, reduce speed and avoid travelling at low tide. Mariners equipped with echo sounders should check depths regularly. Navigation through the Murray Mouth is only permitted during daylight hours. Exclusion Zones established around the dredging operations are in place to ensure public safety. Refer to Notice to Mariners No 42 of 2016 [Notice 42](#).

There is a partial park closure in place for the northern tip of the Coorong National Park. For more information visit [Coorong partial park closure notice](#).

BARRAGE OPERATIONS AND WATER LEVELS IN THE LOWER LAKES

The water level in Lake Alexandrina is approximately 0.78 m AHD and Lake Albert is approximately 0.81 m AHD. The difference in water level is due to wind effects.

Water for the environment has enabled continuous fishway releases and barrage releases to be undertaken during winter.

During the past week:

- fishways at all the barrages have provided connectivity between the Coorong and the Lower Lakes;
- Tauwitchere had numerous gates open to push fresher water down the Coorong;
- Mundoo had a gate open during the first half of the week; and
- Goolwa and Boundary Creek Barrages had gates open to provide releases to support diadromous fish migration.

As of Tuesday 8 September 2020, the weekly releases were approximately 49 GL.

During adverse weather conditions, SA Water will operate the barrages to minimise the risk of seawater entering Lake Alexandrina, therefore minimising any negative salinity impacts from reverse flow events.

Water levels and barrage operations are monitored closely by the South Australian Government, Murray-Darling Basin Authority and Commonwealth Environmental Water Office.

RIVER VESSEL WASTE DISPOSAL STATIONS

Loxton

The Loxton River Vessel Waste Disposal Station is currently being upgraded and will be closed until 30 October 2020. A temporary pump-out service is available for river vessel users in this area. To use this service, please call Mr David Thiselton on 0412 839 392 to arrange a suitable time to pump-out waste. This service is available from Monday to Saturday, 8am to 5pm (please note: 4 hours notice is required for this service).

If you need any other help or advice with regard to this station, please call Mr Hayden Smith on 0457 820 553.

Lock 3

The Lock 3 River Vessel Waste Disposal Station is currently out of commission due to an infrastructure failure. This means that boat operators who need to empty sewage tanks will need to use the nearest alternative waste facility located at Waikerie. Alternatively boat operators who require an urgent pump-out in the Kingston-on-Murray area can contact Mr Hayden Smith on 0457 820 553 for help or advice. Normal boat waste (domestic or galley waste) can still be deposited at the Lock 3 facility at the present time.

POTENTIAL OPERATIONS

The following table identifies the normal pool level (NPL) and normal operating range (NOR) for locks and weirs in South Australia. Potential operations could raise the water level above the NPL or NOR at some locks and weirs.

Weir	Normal Pool Level (NPL) (m AHD)	Normal Operating Range (m AHD)
Lock 6 - Murtho	19.25	19.17 - 19.50
Lock 5 - Renmark	16.30	16.13 - 16.43
Lock 4 - Bookpurnong	13.20	13.16 - 13.50
Lock 3 - Overland Corner	9.80	9.77 - 10.02
Lock 2 - Waikerie	6.10	5.90 - 6.40
Lock 1 - Blanchetown	3.20	3.10 - 3.40

Chowilla Regulator Operation with Raising Lock 6 Weir Pool

A planned potential mid to high level operation of the Chowilla Creek environmental regulator, along with raising the water level in the Lock 6 weir pool by up to 0.6 m above NPL (up to 19.85 m AHD), is now looking highly unlikely given the September River Murray flow forecasts. An initial small raising of Lock 6 approximately 0.1 m above NPL (within the NOR) has been undertaken during the unregulated flow.

First Operation of New Floodplain Infrastructure

The proposed operations of the new Pike and Katarapko floodplain infrastructure and associated weir pool raisings are intended to provide a range of environmental benefits to the plants and wildlife on the floodplain. Actual operations are dependent on approvals, environmental water availability, River Murray flow and water quality conditions, and are subject to change during the event.

Updates on operations will continue to be provided in the *River Murray Flow Report*. If you would like to be sent further communications via email, please provide your details to the Engagement Officer, Ellee Eleftheriadis, at ellee.elftheriadis2@sa.gov.au.

Pike Floodplain with Raising Lock 5 Weir Pool

DEW is planning for a potential low level first operation of the new environmental watering infrastructure on the Pike floodplain, along with raising the water level in the Lock 5 weir pool by 0.5 m above NPL (up to 16.8 m AHD). An initial small raising of Lock 5 approximately 0.08 m (within the NOR) has been undertaken using the unregulated flow. Further weir pool raising and Pike Floodplain operations are planned to commence within the coming weeks and be completed in December 2020.

Katarapko Floodplain with Raising Lock 4 Weir Pool

A low to medium level first operation of the new environmental watering infrastructure on the Katarapko floodplain commenced earlier this week. In conjunction with this the water level in the Lock 4 weir pool is raised and will continue to be raised up to 0.3 m above NPL (up to 13.5 m AHD). The Katarapko operations and Lock 4 raising will be completed in December 2020.



Figure 1: 'The Splash' environmental regulator on the Katarapko floodplain in operation (Source: DEW)

Raising Lock 2 Weir Pool

DEW is planning to potentially raise the water level in the Lock 2 weir pool by 0.52 m above NPL (up to 6.62 m AHD). It is anticipated that the raising will commence in mid-late September and be completed in December 2020. An initial small raising of Lock 2 approximately 0.1 - 0.2 m above NPL (within the NOR) has been undertaken during the unregulated flow.

NAVIGATION ISSUES

Sandbars in the vicinity of the Murray Mouth may cause navigation hazards. Mariners are advised to navigate with caution when operating in the area. Sandbars are also present along sections of the River Murray downstream of Locks 7 and 8 and in South Australia. All Mariners should be aware of the risk of submerged navigation hazards and should regularly check river depth.

RIVER MURRAY WATER LEVELS

Below is a table of River Murray water levels at a number of locations from Lock 10 to Murray Bridge.

River Murray Water Levels

Location	River km	Normal Pool Level (m AHD)	Current Level 9/9/2020 (m AHD)	1974 Flood Level (m AHD)	1993 Flood Level (m AHD)	2016 High Water Level (m AHD)
Lock 10	825.0	30.80	30.82	33.81	33.32	32.72
Lock 9 Kulnine	764.8	27.40	27.40	30.03	29.44	28.85
Lock 8 Wangumma	725.7	24.60	24.63	27.60	27.19	26.85
Lock 7 Rufus River	696.6	22.10	22.14	25.70	25.24	24.97
Lock 6 Murtho	619.8	19.25	19.38	21.03	20.50	20.19
Renmark	567.4	-	16.48	18.54	18.04	17.44
Lock 5	562.4	16.30	16.47	18.07	17.50	17.05
Lyrup	537.8	-	13.54	16.85	16.26	15.80
Berri	525.9	-	13.49	15.81	15.74	15.21
Lock 4	516.2	13.20	13.49	15.65	15.08	14.73
Loxton	489.9	-	10.20	15.05	14.12	13.54
Cobdogla	446.9	-	9.89	13.44	12.38	11.59
Lock 3	431.4	9.80	9.82	13.16	12.02	10.98
Overland Corner	425.9	-	6.51	12.73	11.58	10.41
Waikerie	383.6	-	6.38	11.26	10.24	9.20
Lock 2	362.1	6.10	6.26	10.28	9.30	8.32
Cadell	332.6	-	3.52	9.17	8.08	7.01
Morgan	321.7	-	-	8.85	7.65	6.38
Lock 1 Blanchetown	274.2	3.20	3.34	6.81	5.38	4.46
Swan Reach	245.0	0.75	0.84	6.06	4.51	3.11
Mannum PS	149.8	0.75	0.84	3.15	1.90	1.33
Murray Bridge	115.3	0.75	0.76	2.06	1.26	1.04

Note that the above water levels may be affected by local wind conditions

FURTHER INFORMATION

The WaterConnect website is South Australia's comprehensive water information portal. For real-time data (like salinity, water levels) go to the following page: [WaterConnect Real-time water data](#).

Up-to-date River Murray salinity, flow and water level information can be accessed at the Department for Environment and Water, SA Water and Murray-Darling Basin Authority websites:

- [Water allocation and carryover announcements](#)
- [River Murray real-time water data](#)
- [SA Water River Murray info - levels, flows etc.](#)
- [Murray-Darling Basin real-time water data](#)

The latest news, information and announcements about the River Murray and Basin Plan are available at [River Murray Update](#).

The Department for Environment and Water has published a series of inundation maps for the River Murray. They are available at [River Murray Inundation Maps](#).

Information on the management of acid drainage water in the Lower River Murray can be accessed at: [Managing Acid Sulfate Soils Research Project](#)

Details of river height and rainfall information in the River Murray within Victoria and New South Wales are available at the Bureau of Meteorology website:

- [Victoria rainfall and river conditions](#)
- [NSW rainfall and river conditions](#)

Information provided by the Commonwealth Environmental Water Office can be accessed at [CEWH Environmental Watering](#).

Information on The Living Murray can be accessed at [MDBA TLM](#).

Chowilla Floodplain Icon Site management [Chowilla-floodplain](#).

Department for Environment and Water [Home page](#).

Information provided by the Department of Planning, Transport and Infrastructure on boat licences, registering motor boats, owning and operating water craft, and boat and marine safety can be accessed at [Boating and marine](#).

ID	RM-Flow-Report 20200911
Classification	Public I2 A2
Issued	11 September 2020
Authority	DEW
Master Document Location	R:\Water Group\RMO\WRO\04 Communications\Flow Advices\2020-21
Managed and Maintained by	Water Infrastructure and Operations Branch
Author	Water Infrastructure and Operations Branch
Reviewer	Director, Water Infrastructure and Operations