Annual Drinking Water Quality Report 2013–14

ACTEW WATER

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Information about ACTEW and an electronic version of this annual report can be found on the ACTEW website; actew.com.au

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Summary

ACTEW Water[1] is committed to providing high quality water to the Canberra community.

ACTEW Water carries out an extensive drinking water quality monitoring program that includes the catchments and storage reservoirs, treatment plants, service reservoirs and customers' taps. The information generated within this monitoring program assists ACTEW Water in its operations and ensures that high quality water is delivered to Canberra and Queanbeyan.

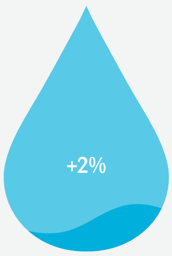
At the end of June 2014, Canberra's four storage reservoirs were holding 77% of their total accessible capacity, which now includes the Enlarged Cotter Dam (ECD). The ECD project has increased Canberra's water storage by adding an extra 72 GL of accessible storage space to the drinking water system. As the population of Canberra and Queanbeyan continues to increase by approximately 1.6% per year, this project combined with the permanent water conservation measures introduced in 2010 has improved our water security for future generations.

Overall daily consumption of water throughout the year ranged between 100 – 273 ML per day, equating to approximately 314 L/day/person, compared to last year's figure of 312 L/day/person. This has resulted in only a 2% increase in the total water supplied to the Canberra and Queanbeyan community. Despite rainfall still remaining below the five year average for the region, this result indicates that water conservation awareness in the community has continued to grow.

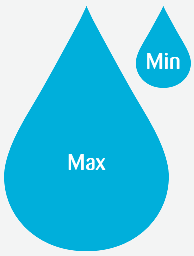
This report covers the period of 1 July 2013 to 30 June 2014.

1 ACTEW Water is a business name owned by ACTEW Corporation Limited ABN 86 069 381 960

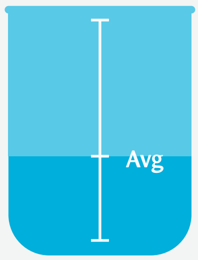
Water supplied up 2%



Daily consumption was 100–273 ML

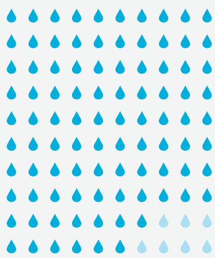


Average person consumed 314 L/day

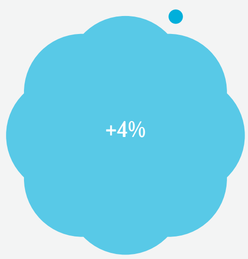


Storage volumes 77%

Rainfall 7% below average



Evaporation 4% above average



1. Canberra's drinking water supply system

ACTEW Water relies on four storage reservoirs in two catchment areas (Cotter and Queanbeyan River) and the Murrumbidgee River for its drinking water supply. Canberra's source water catchments consist of Corin, Bendora and Cotter storage reservoirs on the Cotter River; the Murrumbidgee River; and the Googong storage reservoir on the Queanbeyan River.

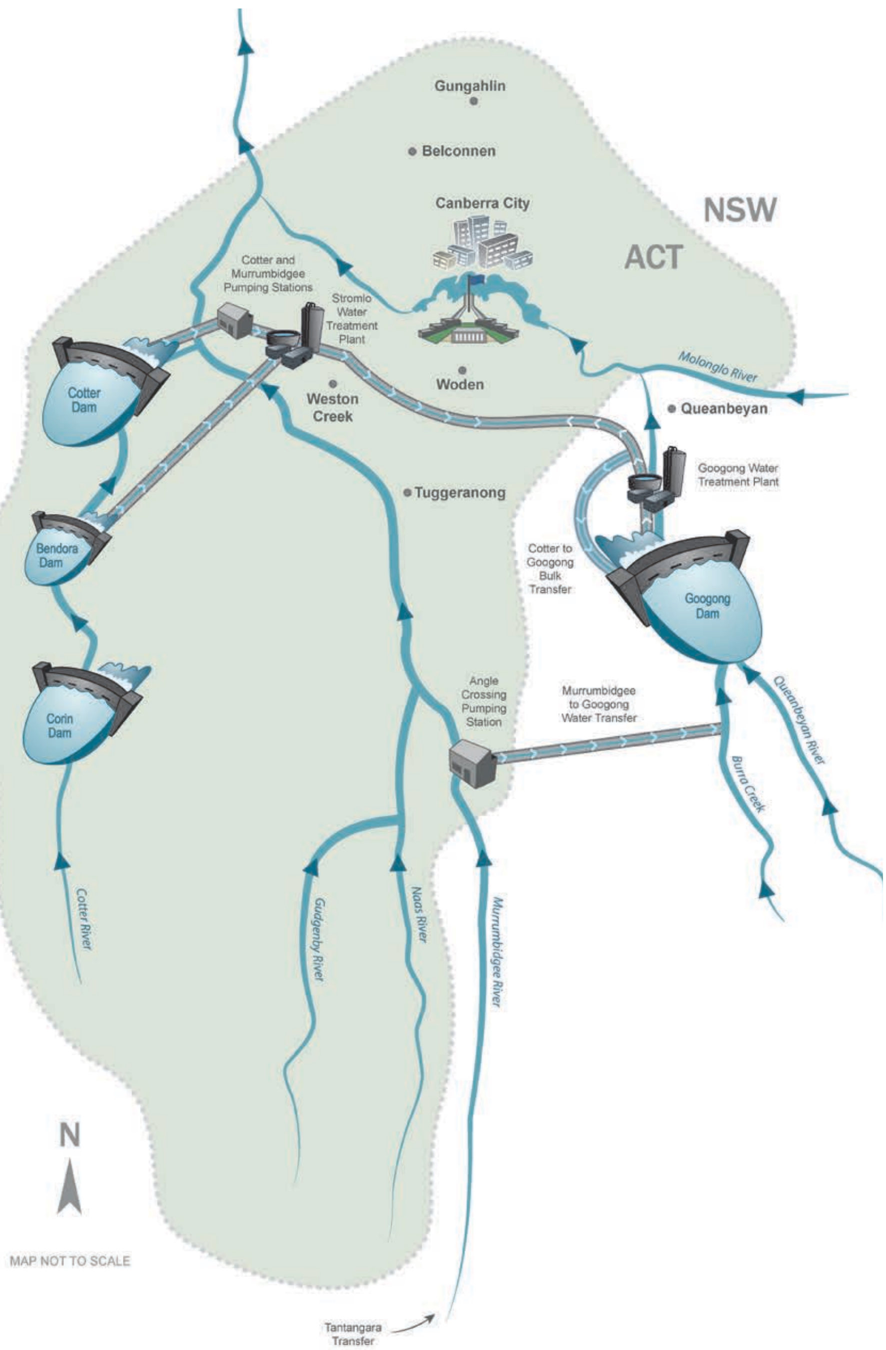
ACTEW Water operates two water treatment plants (WTP), Mount Stromlo WTP to the west of the city of Canberra and Googong WTP to the east. Mount Stromlo WTP receives water from the Cotter and Murrumbidgee catchments for treatment, while Googong WTP treats water from the Queanbeyan River catchment.

The Murrumbidgee to Googong Water Transfer is able to transfer up to 100 ML of water per day from Angle Crossing on the Murrumbidgee River via a 12 km underground pipeline to Burra Creek in NSW which flows into the Queanbeyan River catchment.

Treated water is delivered to customers through 47 service reservoirs, 25 pump stations and over 3,207 km of water mains.

ACTEW Water supplied 48,731 ML of drinking water to Canberra and Queanbeyan during 2013-14 representing an increase in supply of 2% compared to the 2012-13 period. The most recent estimates put Canberra's population at 384,000 and Queanbeyan at 41,000. Annual population growth is tracking at an average of 1.6%. On average, daily consumption ranged from a minimum 100 ML in July 2013 to a maximum of 273 ML in January 2014. Per capita average consumption was 314 L/day/person.

Figure 1.1 Water supply system



2. Managing Canberra's drinking water supply

ACTEW Water applies a multiple-barrier approach throughout its operations to protect the water supply from contaminants, including pathogenic microorganisms.

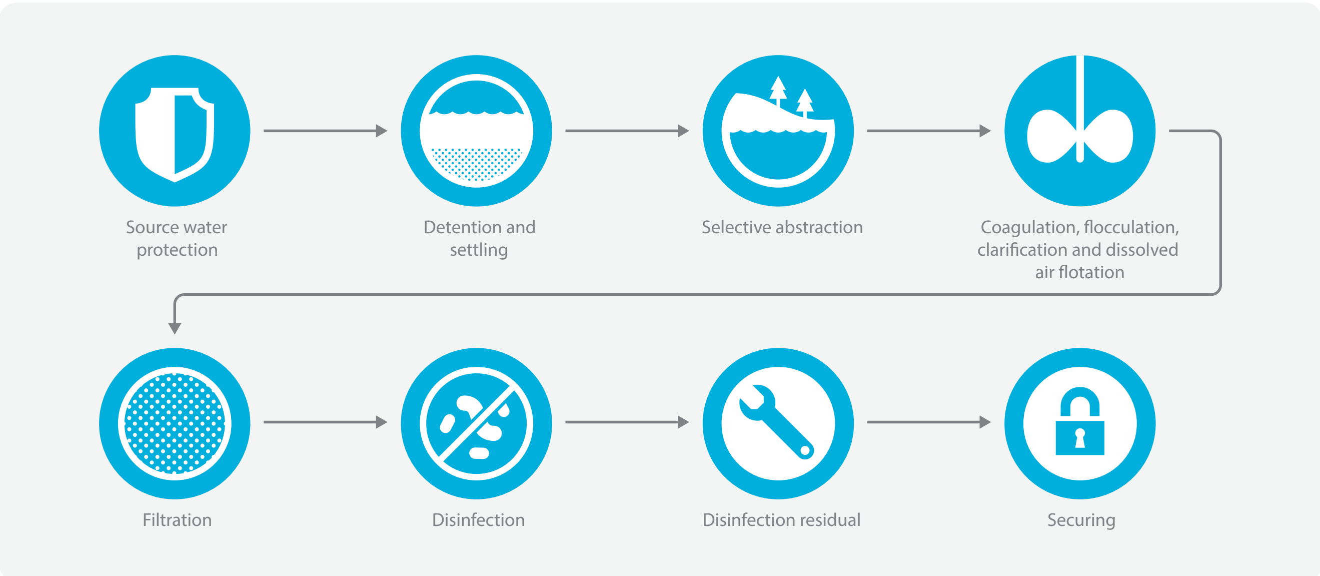
The drinking water supply barriers include the following (refer Figure 2.1):

- Source water protection to reduce contamination risks to water sources.
- Detention and settling of contaminants in the storage reservoirs.
- Selective abstraction to ensure that raw water quality is appropriate for treatment.
- Coagulation, flocculation, clarification (at Googong WTP only) and dissolved air flotation.
- Filtration
- Disinfection of treated water using chlorine and ultraviolet (UV) light (at Mount Stromlo WTP only).
- Disinfection residual in treated water throughout the distribution system.
- Securing the distribution system against possible recontamination.

ACTEW Water manages the performance of these barriers utilising a range of different measures including real-time online analysers, WTP laboratory analysis and via a routine sampling program conducted by an accredited independent laboratory. These monitoring programs enable the early identification of possible points of entry of harmful microorganisms and other substances so the source can be appropriately managed and the risk eliminated.

The drinking water quality monitoring program measures physical, chemical and microbiological parameters of the water supplied to customers. The water quality testing results are verified with the recommended levels in the Australian Drinking Water Guidelines (2011) (ADWG). The guidelines include two different types of values; a health related guideline value, which is the concentration or measure of a water quality characteristic that based on current knowledge does not result in any significant risk to the consumer over a lifetime of consumption; and, an aesthetic value, which is the concentration or measure of a water quality characteristic that is associated with acceptability of water to the consumer; for example appearance, taste and odour.

Figure 2.1 Drinking water supply barriers



Management framework

ACTEW Corporation (under the business name ACTEW Water) holds the Drinking Water Utility Licence issued by the ACT Health Directorate under the Public Health Act 1997 and the Utilities Service Licence issued by Independent Competition and Regulatory Commission (ICRC) under the Utilities Act 2000. These licences allow ACTEW Water to operate a drinking water distribution and supply service.

ACTEW Water operates the water supply system under an Integrated Management System (IMS) to meet quality, environmental, regulatory and workplace health and safety requirements. The IMS is certified and complies with Australian and international standards; AS/NZS ISO9001:2004, AS/NSZ ISO14001:2004, AS/NZS4801:2004 and Codex Alimentarius Alinorm 97/13a. ACTEW Water uses a preventative management approach to ensure the risks to water quality are minimised. A key component is the Hazard Analysis and Critical Control Point (HACCP) system which covers water production from the catchment to the customer's tap in line with the principles of the ADWG.

The externally certified HACCP system is designed specifically to suit the water supply process and enhance the organisation's ability to meet the challenges of managing drinking water quality from the catchment to the tap. HACCP works with ACTEW Water's International Standards-based (ISO 9001:2004) quality system to help manage the risks to drinking water quality. In 2013–14, ACTEW Water was awarded independent HACCP certification for a three year period. This ensures that the management of Canberra's drinking water quality is undergoing continuous evaluation and improvement.

ACTEW Water is committed to operating and continually improving the IMS. The IMS incorporates policy, procedures and work instructions for providing water and wastewater services to its customers and the community.

3. Canberra's source water catchments

Canberra's source water catchments consist of Corin, Bendora and Cotter storage reservoirs on the Cotter River; the Murrumbidgee River and the Googong storage reservoir on the Queanbeyan River. Figure 3.1 shows the capacity of each of these storage reservoirs. All volumes displayed are based on accessible storage.

Figure 3.1 Canberra's source water catchments

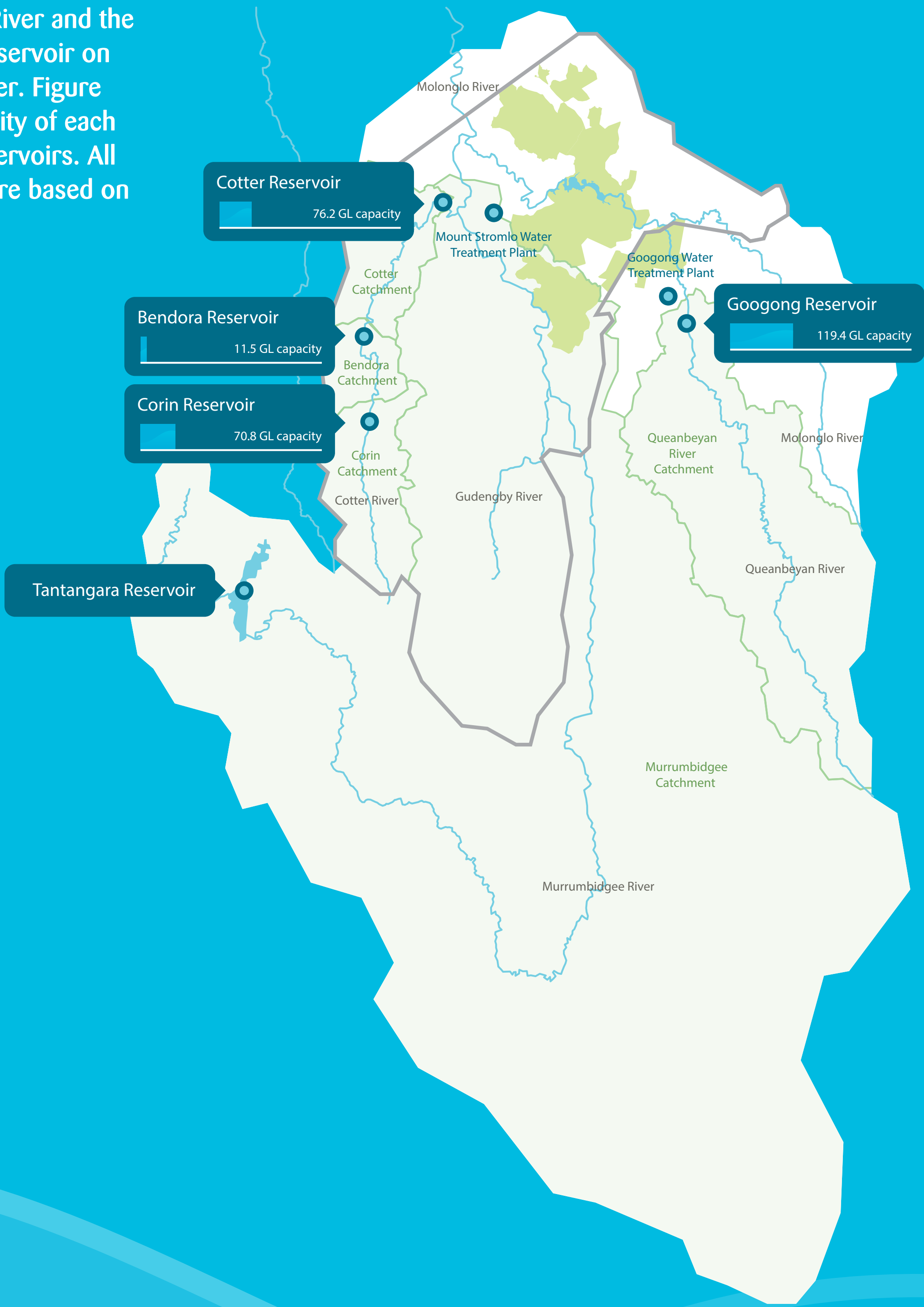


Table 3.1 Rainfall, evaporation and reservoir capacity 2013-14

Total Rainfall (mm)	5 yr average rainfall (mm)	Evaporation (mm)	Total reservoir capacity
620.2	668.5	1609	77%

The majority of the Cotter River catchment is within the Namadgi National Park and is protected from human and domestic animal activities and faecal contamination, as well as other pollutants associated with urban development.

The Cotter River reservoirs have an accessible combined full capacity of 158.4 GL (including the new increased volume of Cotter reservoir), which were 60% full at the end of June 2014. The full accessible capacity of the Cotter reservoir has increased from 3.9 GL to 76.2 GL and is now included in water storage calculations. During 2013–14 Cotter River reservoirs provided 81% of the water supplied to Canberra and Queanbeyan. Of this, Bendora reservoir contributed to 99% of total water supplied and the Cotter reservoir supplied 1%.

The Queanbeyan River catchment, located to the south-east of Canberra, contains both developed and impacted land, which includes forestry reserves, rural pasture and rural residential properties. NSW state agencies and local government councils regulate land planning and manage activities in this catchment. Parks and Conservation Services (PCS) manage the immediate area around the Googong reservoir and recreational access to the water body and foreshore.

The Googong reservoir on the Queanbeyan River is the largest of the four water supply reservoirs. At the end of June 2014 Googong Reservoir was at 100% capacity. During 2013–14 Googong reservoir provided 19% of the water supplied to Canberra and Queanbeyan.

Water from the Murrumbidgee River can be abstracted and blended with water from Cotter and Bendora reservoirs for treatment at the Mount Stromlo WTP or abstracted and blended with water in the Googong reservoir via the Murrumbidgee to Googong Water Transfer. The Murrumbidgee catchment includes a wide variety of agricultural land uses, as well as the towns of Cooma, Numeralla, Bredbo and the suburbs of Tuggeranong.

During 2013–14 water was abstracted from the Murrumbidgee River for maintenance work only. No water was abstracted for drinking water purposes.

Figure 3.2 Reservoir storage levels at 30 June 2014

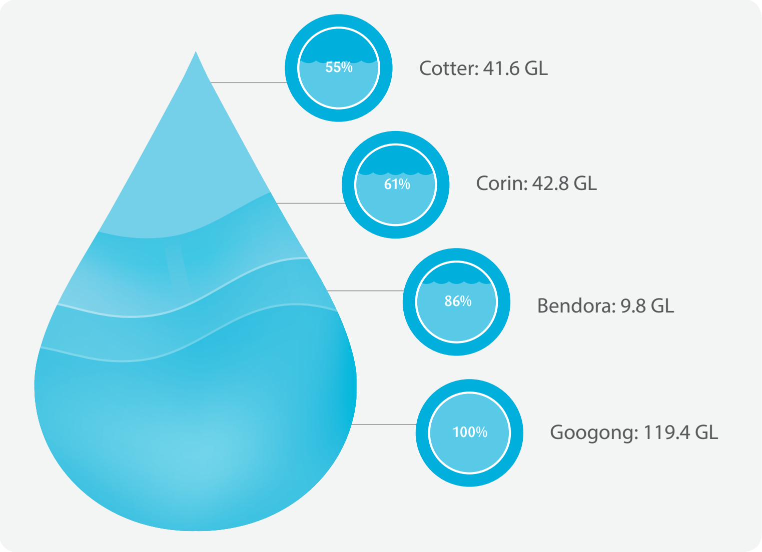


Figure 3.3 Source of drinking water supply for 2013–14

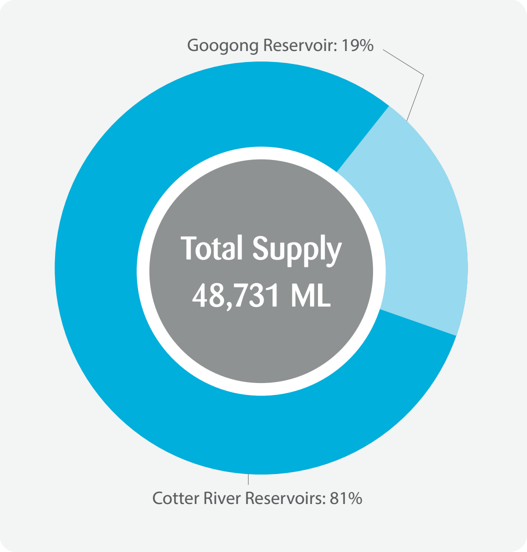
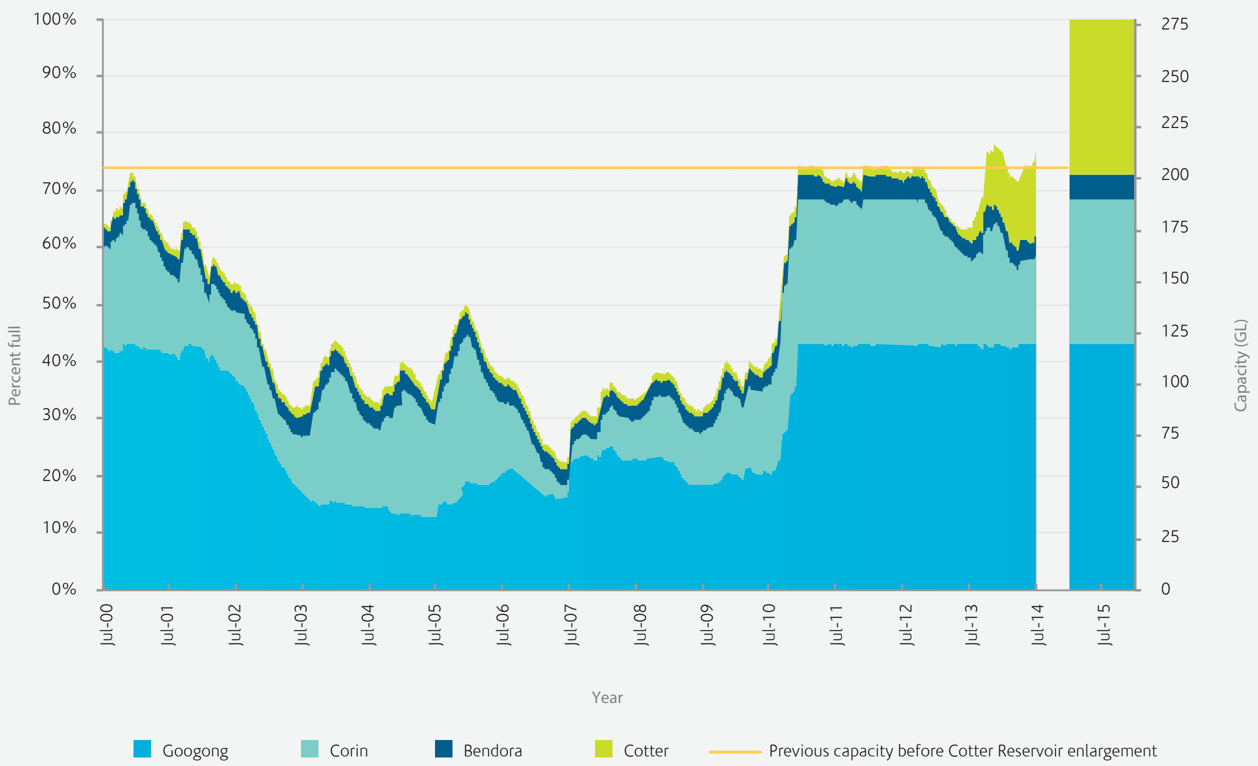


Figure 3.4 Reservoir storage as a percentage of the combined capacity of Corin, Bendora, Cotter and Googong reservoirs from 2000 – 2014



Source Water Protection Program

In 2013-14, ACTEW Water continued to implement the risk management principles adopted from the ADWG, which state that *'catchment management and source water protection provide the first barrier for the protection of water quality.'*

ACTEW Water undertakes catchment protection activities as part of its compliance with the Public Health (Drinking Water) Code of Practice (2007). Fundamental to the protection of source water is the identification and management of potential risks to water quality and supply within the ACT drinking water catchments. Through various water flow, water quality and ecological condition monitoring, ACTEW Water continues to identify and report on hazards which ultimately have the potential to indicate increased risks or degrading water quality conditions. This information is then used to guide investments and management measures by ACTEW Water (and in partnership with our regional stakeholders) in order to reduce the risk of contamination of the source water.

Key outcomes for ACTEW Water's source water protection program (SWPP) in the 2013-14 year included:

- The provision of financial support to allow for a WaterWatch position to be continued in the Cooma-Monaro region. This position coordinates the collection of water quality data across the region, and provides a further avenue to landholders to understand the linkages between land management and water quality protection.
- The provision of financial support to allow for the Southern ACT community-based role to be continued in the Canberra region. This role engages with community and school groups to educate and emphasise the importance of maintaining healthy catchments, to protect our drinking water and the environment.
- Participation in a series of community events, using interactive displays to teach the community about their drinking water sources. Events included the Cotter Dam Open Day and the Conservation Council's Cotter Heritage Festival.
- A continuing and successful partnership with the Actions for Clean Water (ACWA) group. Its first annual progress statement in 2014 noted water quality improvements in the Numeralla area as a result of a successful fish habitat project, the installation of structural erosion controls at three sites, and the finalisation of a 102 km of riparian condition assessment in the Upper Murrumbidgee.
- A strengthening of relationships in the Burra Creek catchment, where ACTEW Water hosts an Environment Reference Group and has participated in a community field day in Burra. ACTEW Water has also partnered with a local community group to deliver training in identification and control of weeds, with a focus on using pesticides safely in a drinking water catchment.

The success of ACTEW Water's SWPP is evident through the recognition the program recieved throughout 2013-14. In July 2013 ACTEW Water received a commendation at the Keep Australia Beautiful Sustainable Cities Awards for an education project involving three schools and a community group in Southern ACT. In September 2013 ACTEW Water was nominated by four of its community partners and awarded the Partnerships with Landcare Award at the ACT Landcare Awards. This recognition from the Landcare community is testimony to the strong relationships ACTEW Water has built with the community sector over recent years. In 2014 ACTEW Water's SWPP won a second award from the Keep Australia Beautiful committee in recognition of its partnership approach and outcomes attained.

ACTEW Water's Source Water Protection Program received a number of awards throughout 2013-2014 including awards from Keep Australia Beautiful and ACT Landcare. This recognition is testimony to the strong relationships ACTEW Water has built with the community over recent years.

Source Water Protection Strategy

The SWPP commenced for ACTEW Water as a five year pilot program between 2008-2013. The pilot program has positioned ACTEW Water as an established and respected stakeholder with NSW Local Government and ACT Government in the area of catchment management and coordination, and is acknowledged as a productive partner in the identification and management of risks to water quality in the ACT and region.

ACTEW Water has developed a new strategy for source water protection that builds on existing knowledge and partnerships to continue the program with a stronger operational focus and an organisation-wide delivery mechanism. This strategy focusses on catchment risk assessments for the Cotter, Queanbeyan River and Murrumbidgee catchments, based on operational forecasts, to identify and address drinking water quality risks through a suite of management actions.

ACTEW Water will continue to collaborate with government agencies, non-government organisations and community organisations with aligned interests in land stewardship and management in the drinking water catchments, to deliver actions and strengthen the legal and policy protection measures that protect water quality in the water supply catchments.

ACTEW Water will also continue to deliver key messages to develop the community's understanding of the importance of healthy catchments in the delivery of safe drinking water to the customer's tap.

Water quality in the raw water sources

ACTEW Water undertakes an extensive sampling and analysis program, monitoring water quality in the storage reservoirs and the Murrumbidgee River. The program, which is developed in consultation with ACT Health, is continuously reviewed and managed to ensure it incorporates changes to the supply system and includes emerging issues in drinking water supply management.

The raw water storage reservoirs assist to stabilise water quality through detention and settling of contaminants, although there are times when high inflows stir-up sediments or currents mix the reservoirs. Water offtakes at regular intervals in each of the reservoirs enable the most suitable quality water to be abstracted for treatment.

Blue-green algae in the reservoirs

Cyanobacteria or blue-green algae occurs naturally in water bodies, however when conditions are favourable, they can grow into excessive numbers termed blooms. Blue-green algae blooms of *Anabaena circinalis and Microcystis aeruginosa* can produce taste and odour compounds and toxins that are dangerous to humans and animals.

ACTEW Water carries out regular monitoring of blue-green algae in all the raw water sources. The extent and frequency of monitoring varies with the seasons, but is generally at its most frequent in the warmer months as algal blooms are generally at their peak in summer. Agriculture and other development in the Queanbeyan River and Murrumbidgee catchments increase the nutrient levels in the waterways making these raw water sources more susceptible to algal blooms.

In the warmer months of 2013–14 concentrations of blue-green algae in the Googong reservoir were slightly elevated. Blue-green algae was also detected in the Cotter reservoir from mid December 2013 through to early March 2014. Due to storage volumes in the Corin and Bendora reservoirs remaining high, it was not necessary to abstract water from Googong or Cotter reservoirs during these times.

Under the Public Health (Drinking Water) Code of Practice (2007), ACT Health is consulted if elevated levels of blue-green algae are detected and the regular monitoring program is expanded. Details of the notifications provided to ACT Health with respect to blue-green algae are provided in *Section 8*.

Pesticide and herbicide monitoring in drinking water supplies

Monitoring for pesticides and herbicides is undertaken in all drinking water sources. During 2013-14 there were no pesticide detections above ADWG health values in any of the four storage reservoirs or the Murrumbidgee River.

Table 3.2 Parameters monitored in raw water sources

Physiochemical	Chemical	Biological
Temperature	Total and dissolved organic carbon	Total coliforms
Conductivity	Nitrogen incl. oxidised N and ammonia	*Escherichia coli (E.coli)*
Turbidity	Phosphorous incl. phosphate	Heterotrophic bacteria
Alkalinity	Chlorophyll-a	Phytoplankton incl. blue-green algae
Colour	Total and dissolved metals	*Cryptosporidium* and *Giardia*
UV absorbance	Herbicides and pesticides	
pH	Polycyclic aromatic hydrocarbons (PAH)	
Dissolved oxygen	Radionuclides	
	Taste and odour compounds	

4. Water treatment operations

ACTEW Water operates two water treatment plants (WTP) – the Mount Stromlo WTP treating water from the Cotter catchment reservoirs and the Murrumbidgee River and the Googong WTP treating water from Googong reservoir.

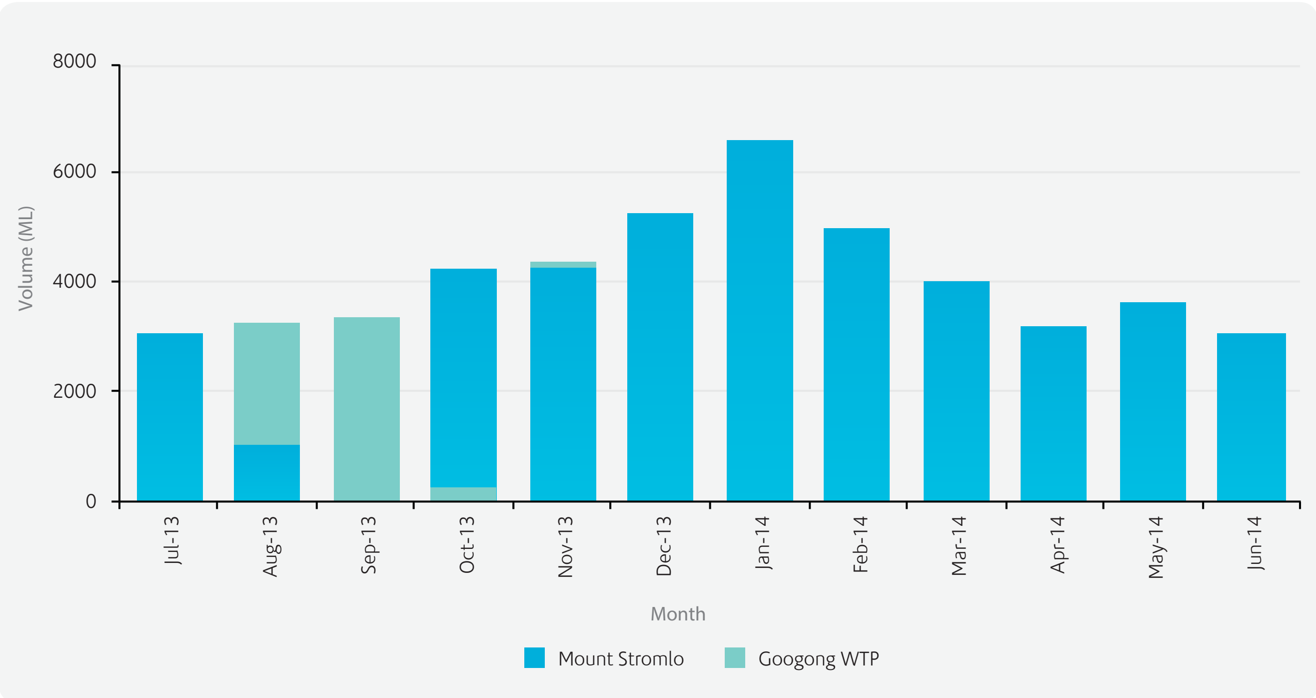
Under ACTEW Water's HACCP-based water quality management system eight critical control points are applied in the supply system to ensure the ACT and Queanbeyan receive high quality water. Five of these critical control points exist in the WTP operations, highlighting the importance of the water treatment operations to the delivery of high quality water.

A summary of WTP operations over the 2013-2014 year is provided in the table below.

Table 4.1 WTP operations for supply of drinking water for 2013-14

	Volume Supplied	Proportion of total
Mount Stromlo WTP	39 GL	81%
Googong WTP	9 GL	19%

Figure 4.1 Treated water production



Mount Stromlo WTP

Mount Stromlo WTP has a treatment capacity of 250 ML of water per day. Treatment processes are designed to remove contaminants in drinking water. The WTP can operate in two treatment process modes – direct filtration, and dissolved air flotation and filtration (DAFF). The dissolved air flotation treatment step is an optional treatment step which enhances treatment capabilities when poorer raw water quality is treated. The treatment process is shown in Figure 4.2 and described in the following list.

- Pre-treatment for pH adjustment and stabilisation with lime and carbon dioxide.
- Coagulation by liquid and/or polyaluminium chloride.
- Flocculation aided by polyelectrolyte.
- Dissolved air flotation (if enabled).
- Filtration
- Fluoridation by sodium fluorosilicate.
- Disinfection by UV light.
- Disinfection by chlorination.
- pH adjustment and stabilisation with lime.

UV disinfection is used at the Mount Stromlo WTP to further reduce the risk of pathogens entering the drinking water supply. The UV system contains three parallel treatment trains, each of which have three banks of high-intensity, medium-pressure ultraviolet lamps. The quality of filtered water input to the units is monitored online and each UV reactor includes sensors to continuously measure the UV irradiance in the water to ensure that an adequate UV dose is achieved. The power of each lamp is automatically regulated to ensure the required dose is maintained based on flow rate.

The UV system continued to reliably meet performance standards greater than 95%. In 2013–14, total proportion of water on specification was greater than 99% (Figure 4.3).

Figure 4.2 Water supply process from catchment to Mount Stromlo WTP to customers' taps

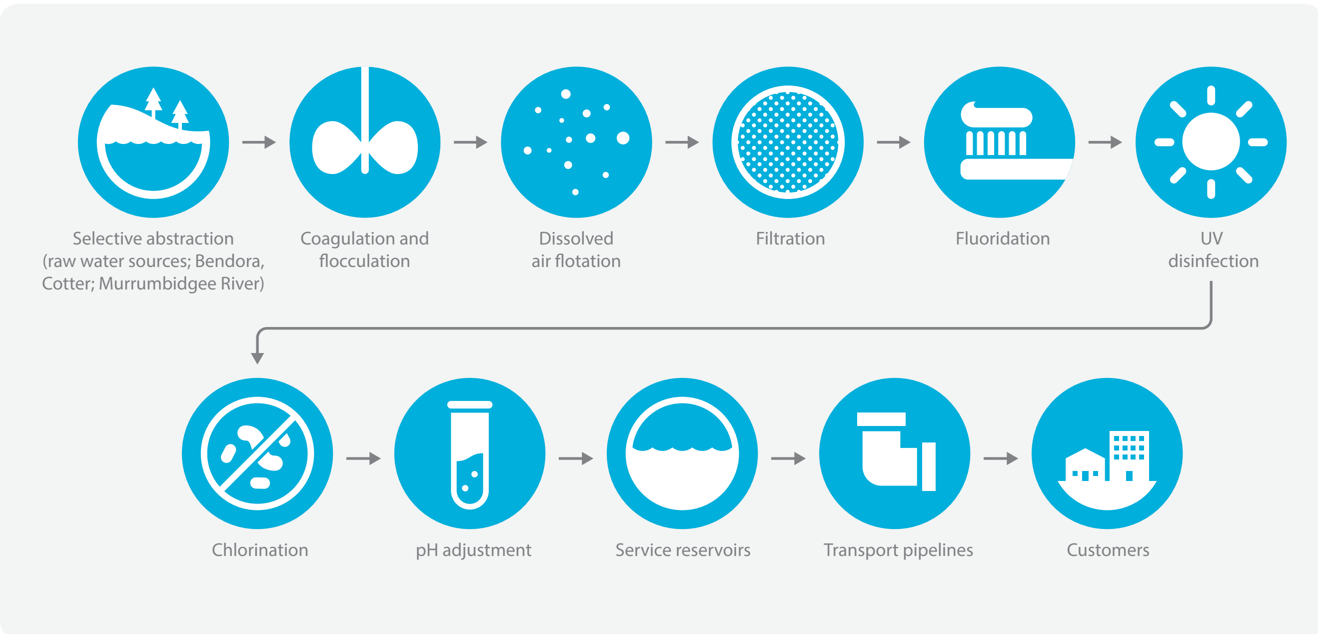
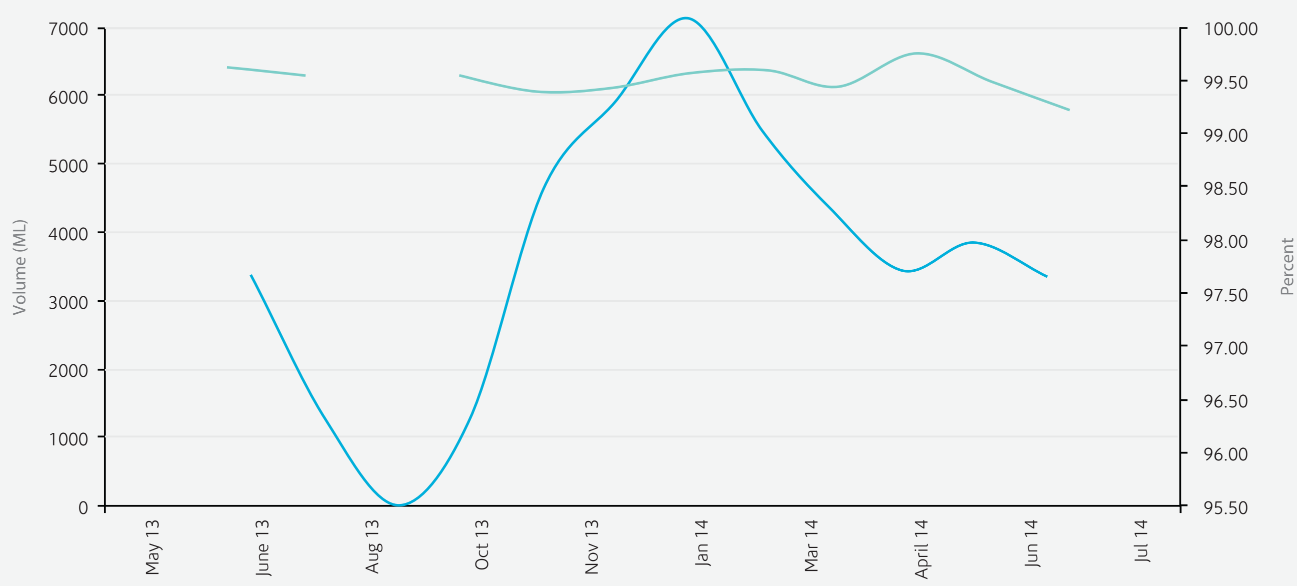


Figure 4.3 Mount Stromlo WTP UV disinfection performance



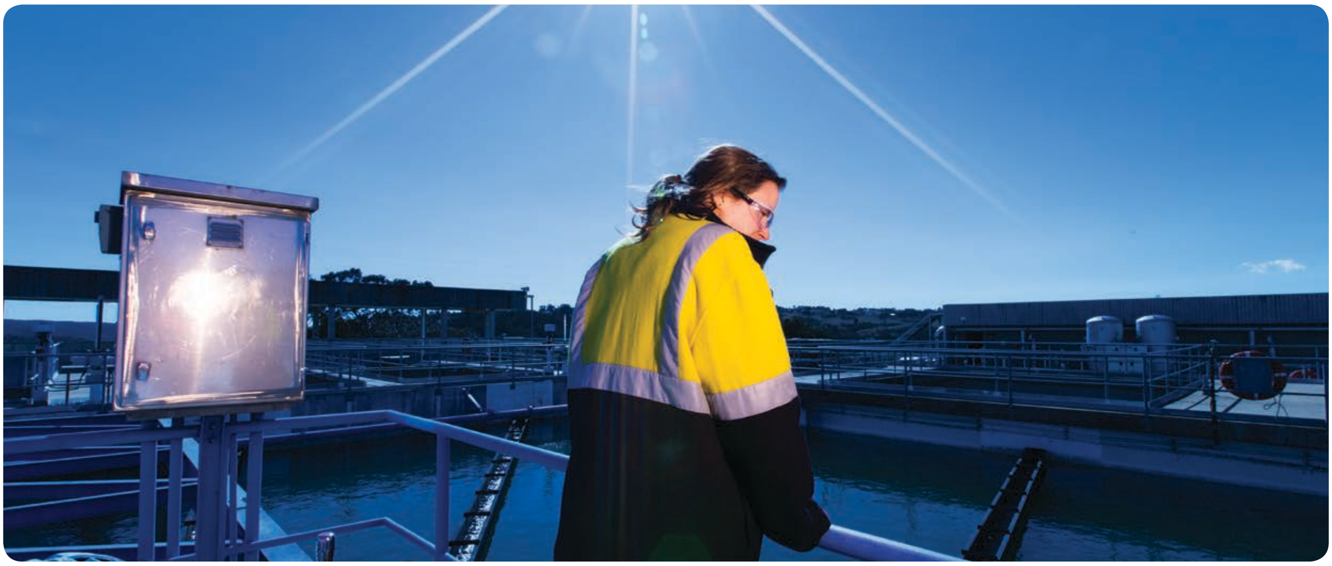
Googong WTP

Figure 4.4 Water supply process from catchment to Googong WTP to customers' taps

Googong WTP has a treatment capacity of 270 ML of water per day. Googong WTP continues to be used in conjunction with Mount Stromlo WTP to meet summer peak demand and enable essential maintenance works to be carried out at Mount Stromlo WTP.

The water treatment process used at Googong WTP is as follows:

- Optional powdered-activated carbon for taste and odour compound removal, if required.
- Coagulation by liquid alum.
- Flocculation aided by polyelectrolyte.
- Dissolved air flotation and filtration (augmented plant) or clarification and filtration (original plant), depending on operational mode.
- Disinfection by chlorination.
- pH adjustment and stabilisation with lime.
- Fluoridation by sodium fluorosilicate.



Mount Stromlo and Googong WTP performance

Extensive monitoring of process operations are required to ensure optimum performance of treatment plants. Online analysers enable continual monitoring of key water quality parameters, which means that changes in the raw or process water quality are quickly identified and addressed. Chlorine, pH, turbidity, UV dose (at Mount Stromlo WTP) and fluoride are all monitored continuously to ensure the treatment processes are operating correctly. Regular laboratory monitoring includes analysis of *Escherichia coli (E. coli)*, *Cryptosporidium* and *Giardia* in both untreated (raw) and treated (final) waters. Table 4.2 below shows average treated water quality values for both WTPs. The ADWG health guideline is the concentration or measure of a water quality characteristic that, based on present knowledge, does not result in any significant risk to the health of the consumer over a lifetime of consumption.

Table 4.2 Average treated water quality during 2013-14

		Units	ADWG Health value	Mount Stromlo WTP	Googong WTP
Chlorine	Free	mg/L	-	1.39	2.02
	Total	mg/L	5	1.41	2.24
pH*		pH units	6.5-8.5	7.34	7.43
Fluoride		mg/L	1.5	0.80	0.82
Giardia		cells/L		ND	ND
Cryptosporidium		cells/L		ND	ND
E.coli		MPN/100 mL	<1	<1	<1

*aesthetic value only, no current ADWG health value; ND not detected

Chlorine disinfection

All drinking water processed by the treatment plants is disinfected using chlorine. This chemical is widely used in treatment plants throughout the world to control microbiological contaminants, such as bacteria and viruses. Chlorine is added to Canberra's water at a concentration sufficient enough to disinfect the water leaving the treatment plant and to provide a free chlorine residual that will continue to protect against contamination in the distribution network. The ADWG health guideline for chlorine is 5 mg/L and the aesthetic value is 0.6 mg/L, which is based on an odour threshold. Some customers are sensitive to the taste or smell of chlorine and ACTEW Water endeavours to manage chlorination to optimise the concentrations at the customer's tap.

Turbidity

Turbidity is a measurement of the suspended and dissolved particulates in water. These include suspended colloidal particles, clay and silt. Water with a high level of turbidity often has a muddy or milky appearance. The ADWG states "*Where filtration alone is used as the water treatment process to address identified risks from Cryptosporidium and Giardia, it is essential that filtration is optimised and consequently the target for the turbidity leaving the individual filter should be less than 0.2 NTU, and should not exceed 0.5 NTU at any time*".

Individual filter turbidity for Mount Stromlo WTP is shown in Figure 4.5 and Googong WTP in Figure 4.6.

Figure 4.5 Mount Stromlo WTP filters - cumulative frequency

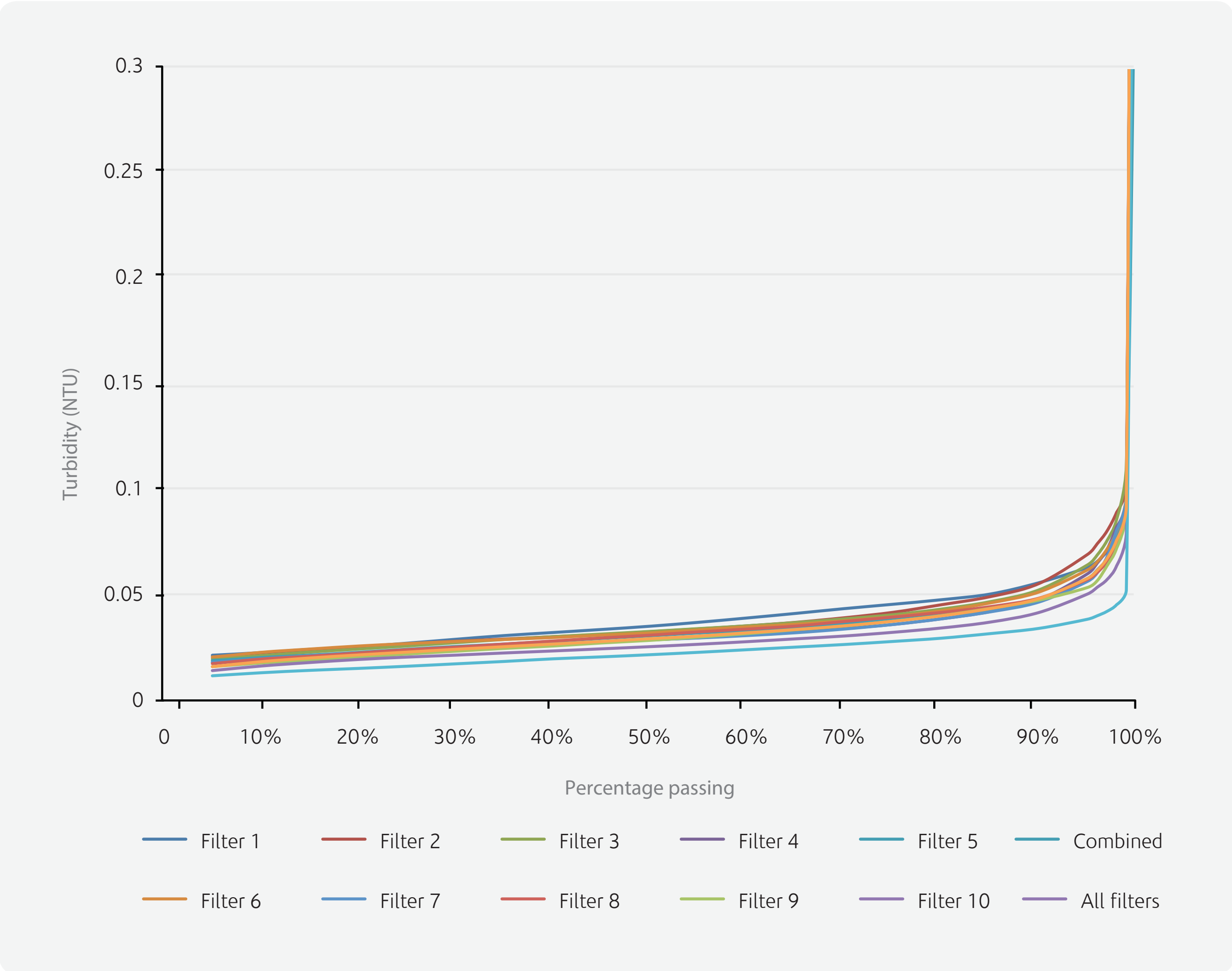
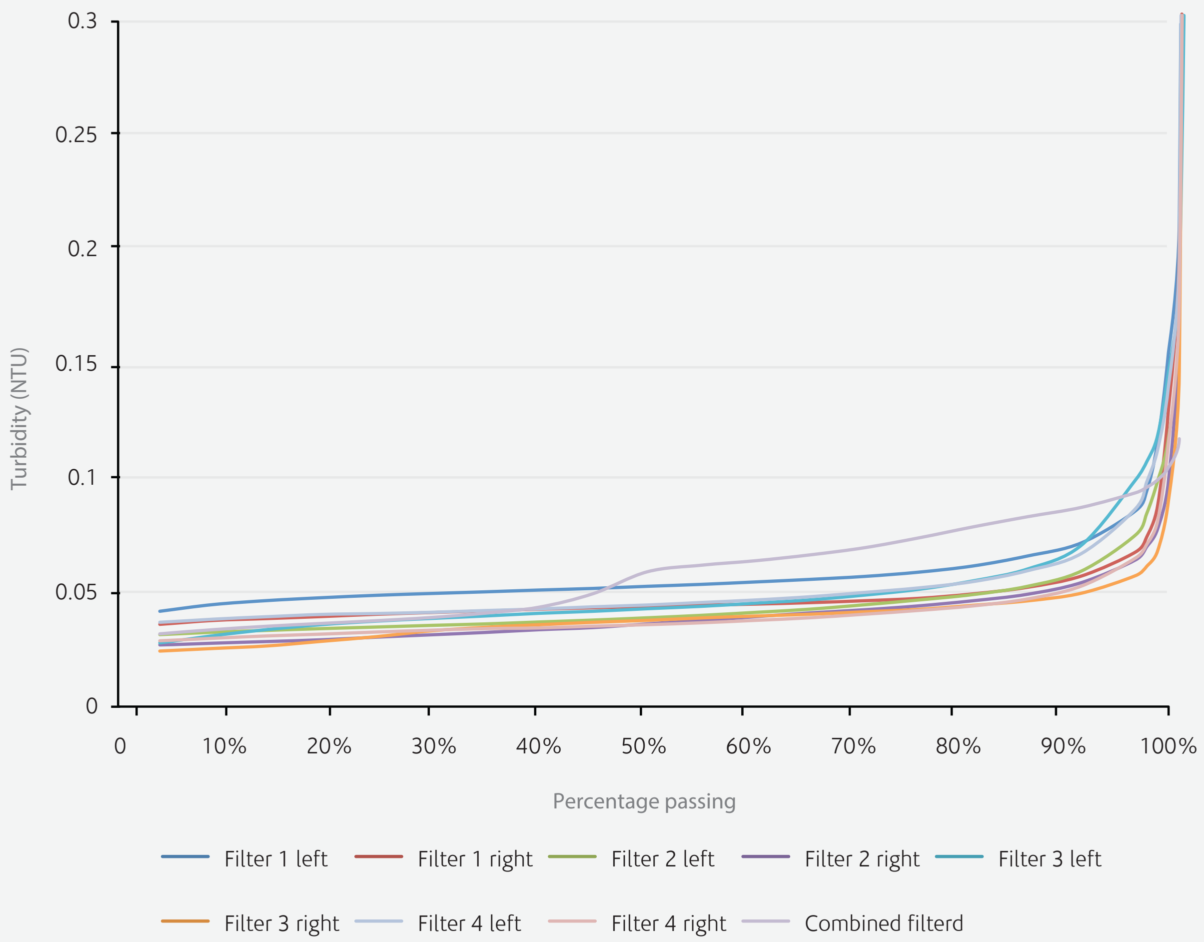


Figure 4.6 Googong WTP filters - cumulative frequency



Cryptosporidium and *Giardia*

Cryptosporidium and *Giardia* are microorganisms that can cause gastroenteritis. Infected people show either no symptoms or can suffer diarrhoea, vomiting and fever, and healthy people usually recover fully. There is a background level of infection by *Cryptosporidium* and *Giardia* in the community. These naturally occurring organisms are usually spread through contact with pets, farm animals or people who are already infected.

Testing methods for *Cryptosporidium* and *Giardia* are complex and if detected, it is difficult to confirm whether they are infectious to humans. ACTEW Water undertakes a routine monitoring program for *Cryptosporidium* and *Giardia* at the WTP in the raw and treated water as well as in the storage reservoirs and Murrumbidgee River. All positive detections from the raw and treated water at the WTP are reported to ACT Health which determines the level of public risk and is responsible for informing the public if there is a health concern.

As shown in tables 4.3 and 4.4, in 2013-14 *Cryptosporidium* and *Giardia* was not detected in any raw or final waters being treated at the WTP.

The UV disinfection process at the Mount Stromlo WTP is specifically designed to target these microorganisms.

Table 4.3 2013-14 *Cryptosporidium* and *Giardia* monitoring at Mount Stromlo WTP – Cotter catchment and Murrumbidgee River source

Test	Sample point	Number of samples analysed	Number of samples positive
Cryptosporidium	Bendora raw water	10	0
	Cotter/Murrumbidgee raw water	1	0
	Final water	10	0
Giardia	Bendora raw water	10	0
	Cotter/Murrumbidgee raw water	1	0
	Final water	10	0

Table 4.4 *Cryptosporidium* and *Giardia* monitoring at Googong WTP – Googong reservoir source

Test	Sample point	Number of samples analysed	Number of samples positive
Cryptosporidium	Raw water	3	0
	Final water	3	0
Giardia	Raw water	3	0
	Final water	3	0

Due to the lower levels of catchment protection and little detention time associated with the Murrumbidgee River water, frequent monitoring for *Cryptosporidium* and *Giardia* is carried out at the abstraction point. Furthermore, rainfall events can instigate additional monitoring if necessary. During 2013–14, two samples taken from the Murrumbidgee River abstraction site were positive for *Giardia* and three samples were positive for *Cryptosporidium*. The UV disinfection process at the Mount Stromlo WTP is specifically designed to target these microorganisms; however, during 2013-14 no water was abstracted from the Murrumbidgee River for drinking water use.

Table 4.5 Murrumbidgee River water

Test	Sample point	Number of samples analysed	Number of samples positive
Cryptosporidium	Murrumbidgee raw	19	3
Giardia	Murrumbidgee raw	19	2

Fluoride

The Drinking Water Utility Licence, issued by ACT Health, requires that fluoride is added to the ACT's drinking water network at a concentration between 0.6 and 1.1 mg/L of drinking water. "*The aim of water fluoridation is the adjustment of the natural fluoride concentration in fluoride deficient water to that recommended for optimal dental health*" (NHMRC 2007). In 2013–14 fluoride concentrations were maintained in the treated water at an average of 0.8 mg/L.

5. The distribution system

The drinking water distribution system is operated with a number of physical and disinfection barriers in place to minimise the potential for contamination of the water.

Sewerage mains are generally buried deeper than the water network, minimising the risk of contamination through groundwater. The positive pressure in the water mains is an effective barrier, preventing contaminants entering the network. Additionally, backflow prevention devices are installed at customer supply points to protect against contaminants entering the network.

ACTEW Water maintains a free residual chlorine concentration in the water distribution network to protect against microbiological contamination of the water between the WTP and the customer's tap.

The Canberra distribution system is divided into four water quality zones:

- **water quality zone 1** – North Canberra and Gungahlin
- **water quality zone 2** – Belconnen
- **water quality zone 3** – South Canberra, Woden and Weston Creek
- **water quality zone 4** – Tuggeranong

ACTEW Water also supplies bulk water via two supply points to Queanbeyan. ACTEW Water supplies this water under a Service Level Agreement with the Queanbeyan City Council.

Figure 5.1 Water quality monitoring zone map

Distribution service reservoirs

In 2013–14 ACTEW Water operated 47 service reservoirs and three tanks located throughout the city. These reservoirs receive water from the WTPs via bulk supply and trunk mains and provide storage for between 450 ML and 680 ML of water depending on demand. All Canberra service reservoirs are secure structures to ensure the integrity of the supply system is maintained and to prevent contamination from birds and animals. Regular inspections are carried out to assess their external condition and the security of the site. Reservoir cleaning is also routinely undertaken every three to five years, during which the reservoir is emptied, cleaned and inspected internally.

Frequent water quality monitoring occurs at each reservoir which includes sample analysis for, total coliforms and *E. coli*, heterotrophic bacteria, temperature, and chlorine to verify that the water quality complies with ADWG and to optimise system operations. A summary of water quality analysis undertaken at service reservoirs across all four water supply zones is presented in the table below.

Table 5.1 2013-14 service reservoir monitoring

	No. of Samples analysed
E.coli	846
Total coliforms	846
Heterotrophic plate count	846
Temperature	846
Free chlorine	846

Water quality at customers' taps

Ensuring that high quality water is delivered to customers is a priority to ACTEW Water. A comprehensive routine drinking water quality monitoring program based on the ADWG verifies water quality throughout the distribution system. Each month 84 random customer garden taps are monitored from a pool of over 350 sites throughout Canberra suburbs (21 samples from each water quality zone). The garden taps are used as they are easily accessible, provide static sample points in the distribution system allowing historical data acquisition, and they enable verification of the actual water received by customers. The parameters that are routinely tested are summarised in Table 5.2.

Table 5.2 Customer taps monitoring

Physiochemical	Chemical	Biological
Temperature	Chlorine	Total coliforms
Conductivity	Fluoride	*E.coli*
Turbidity	Hardness	Heterotrophic bacteria
Alkalinity	Metals	
Colour	Trihalomethanes (THM)	
Total dissolved solids	Plasticisers	
pH	Polycyclic aromatic hydrocarbons (PAH)	
	Haloacetic acids	

Disinfection in the distribution system

Chlorine is added to water in the final stages of treatment at Mount Stromlo and Googong WTPs. Water entering the distribution system needs to contain an appropriate free chlorine concentration, termed disinfection residual, when delivered to customer taps. This ensures that chlorine continues to provide protection against microbiological contamination in the distribution network. Chlorine and bacterial levels are frequently monitored in the distribution system.

The ADWG has an aesthetic guideline value of 0.6 mg/L, which is based on an odour threshold. Some customers may be able to detect chlorine at lower concentrations. As the concentration of chlorine is relied upon to preserve water quality through the distribution system, maintenance of chlorine residual in drinking water is a high priority.

In 2013-14 the concentrations of free chlorine at customers' taps across all four water quality zones were below the ADWG health guideline level (5 mg/L). The concentrations ranged from 0.03 – 1.14 mg/L, with the exception of one sample recording a concentration of 6.2 mg/L (see Section 8 for further information relating to this sample).

Whilst chlorine protects against microbiological contamination, it also reacts with naturally occurring organic matter to form a range of undesirable organic compounds including trihalomethanes (THMs). The ADWG states that "*total THMs should not exceed 0.25 mg/L and although system performance should encourage a reduction in THMs, disinfection should not be compromised, as non-disinfected water poses a significantly greater public health risk*." High THM concentrations may indicate the presence of other chlorination by-products. The distribution of THM results for 2013–14, across all four water quality zones are shown in Figure 5.3. As can be seen, typical THM levels in Canberra's drinking water remain well below ADWG levels.

Figure 5.2 Residual chlorine concentration at customers' taps

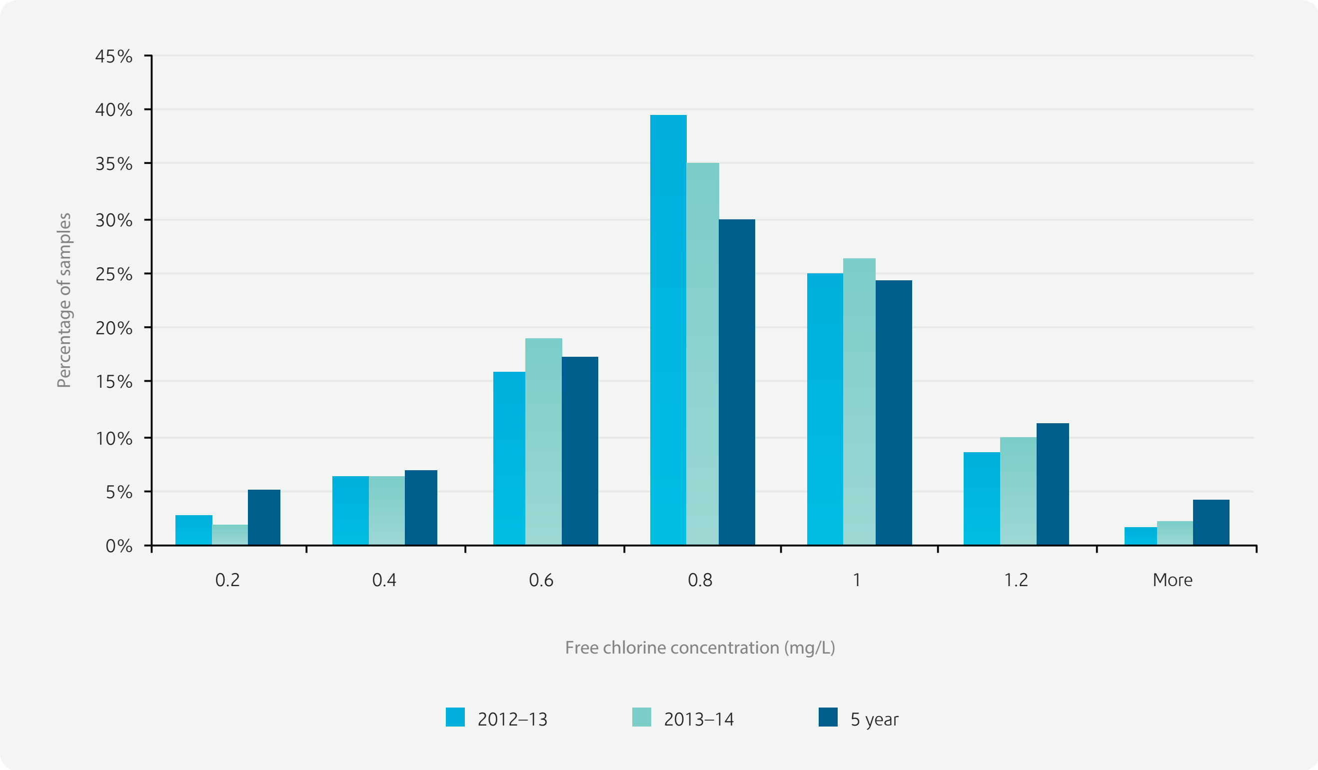
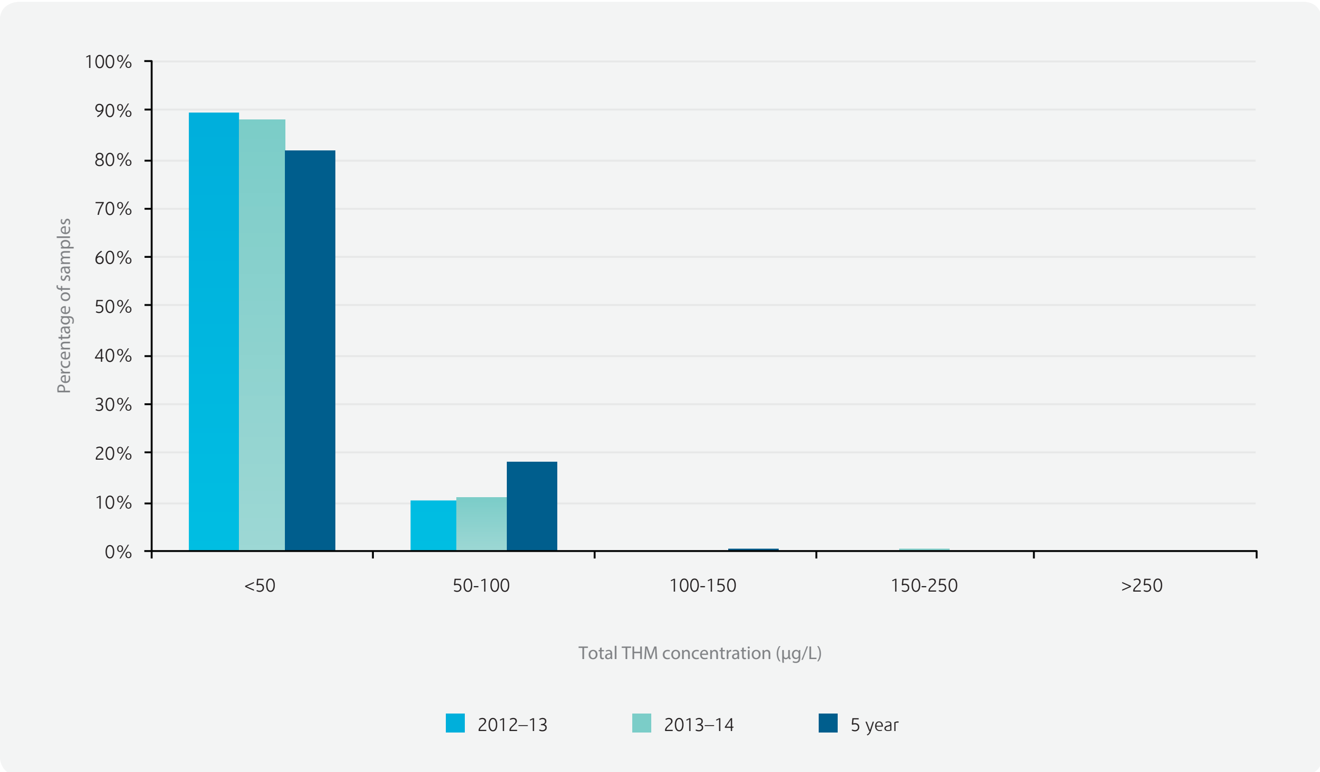


Figure 5.3 THMs at customers' taps



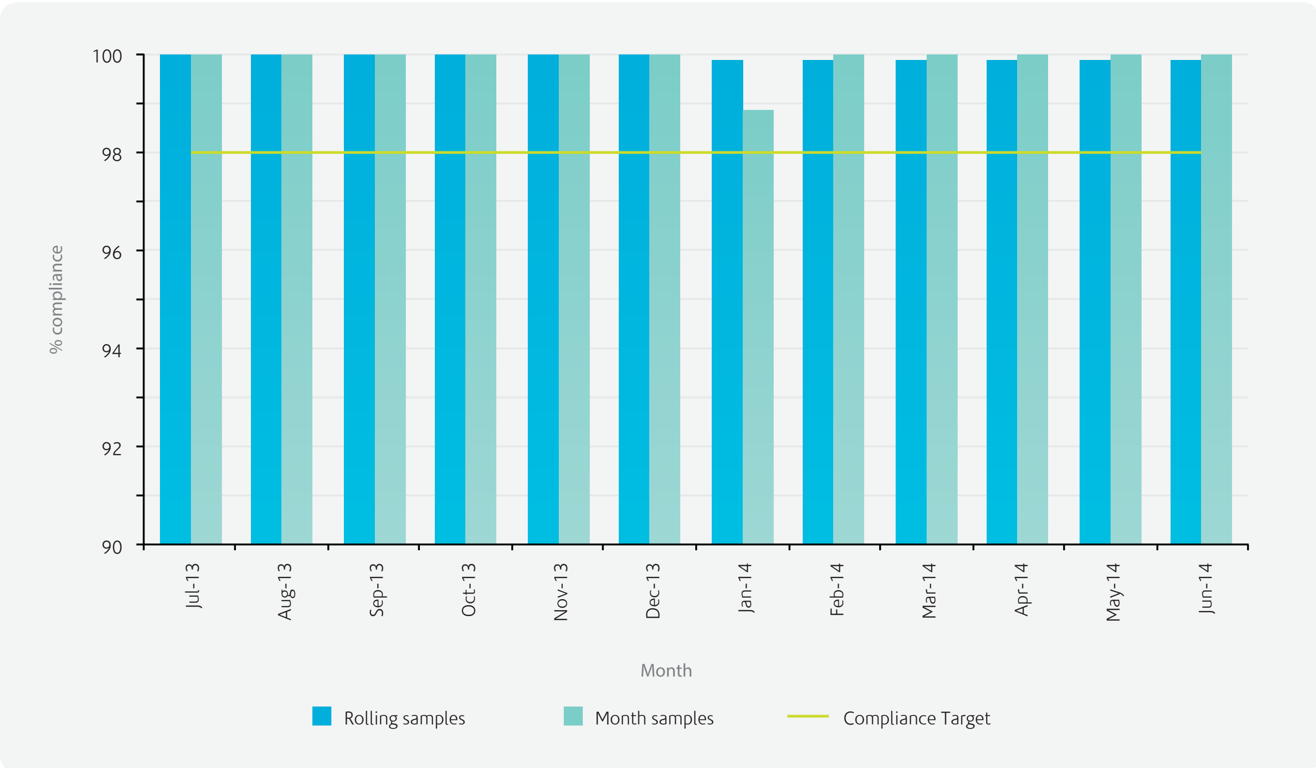
Microbiological contamination of drinking water

The biggest risk to drinking water is microbiological contaminants. The treatment process is designed to remove the microbiological contaminants that may be present in raw water sources. The faecal indicator bacteria *E. coli* is used to determine whether potential faecal contamination has occurred. If *E. coli* is present in drinking water, it may suggest that enteric pathogenic microorganisms are present.

The ADWG suggest that *E.coli* should not be detected in a minimum 100 mL sample of drinking water. During 2013–14, 99.9% of samples returned no detections of *E.coli* (Figure 5.4) across all four water quality zones. This equates to one sample containing *E.coli* out of a total of 1008 samples. Further investigation was conducted at the site of this positive sample and additional analysis confirmed no presence of *E.coli*. Further information with regard to this result is provided in Section 8.

During 2013-14, 99.9% of samples returned no detections of *E.coli*. This equates to one sample containing *E.coli* out of a total of 1008 samples.

Figure 5.4 *E.coli* compliance results at customers' taps



Physical and chemical properties

The pH of drinking water

A pH value in the range of 6.5 to 8.5 is optimal for water supply systems. In 2013–14, 98% of pH values measured at customers' taps across all four water quality zones were within this range.

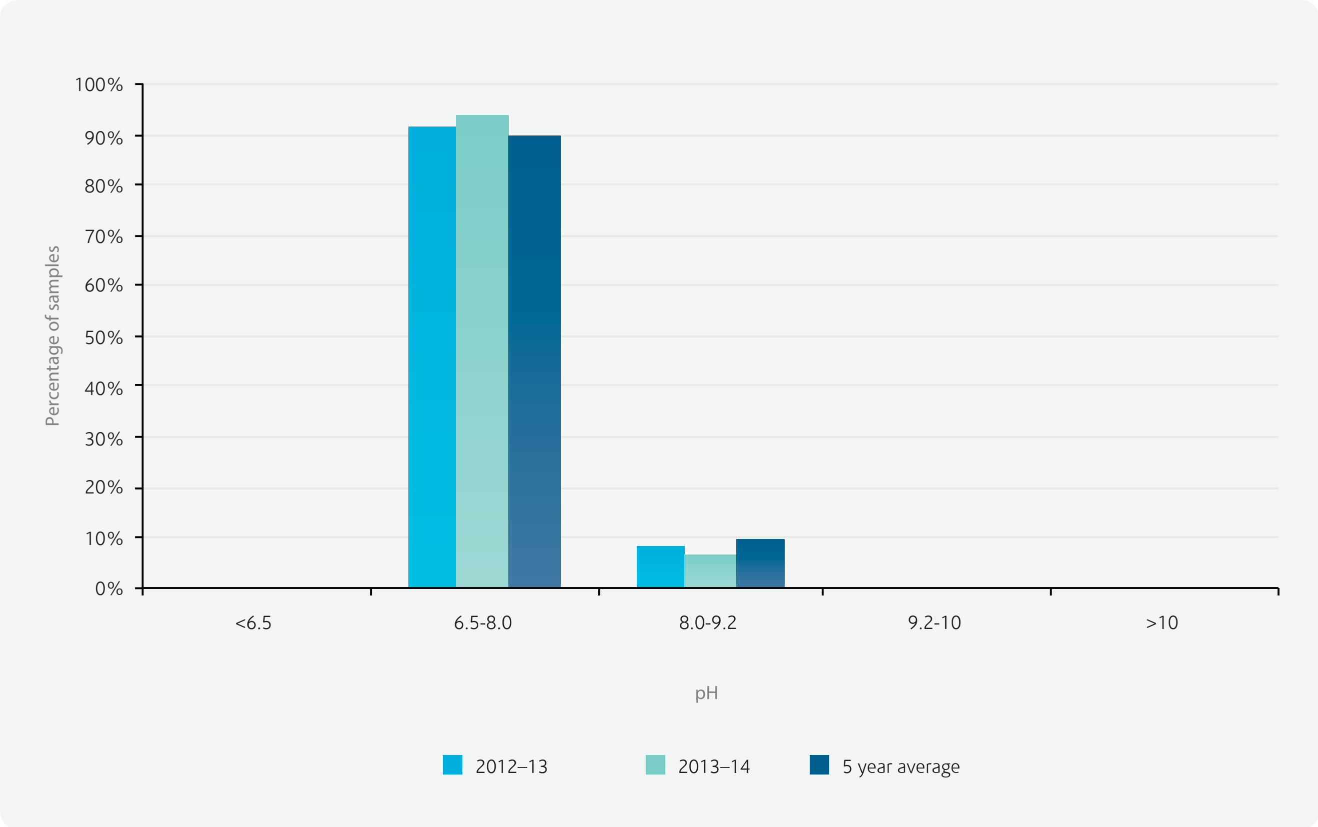
pH increases through the distribution system due to leaching of lime from cement lined pipes and concrete service reservoirs. This increase is generally proportional to the detention time of the water within the distribution network.

The buffering capacity of water from the Mount Stromlo WTP has continued to provide a positive impact on management of pH within the distribution system. The ADWG upper limit of 8.5 is set to minimise the potential for taste problems or scaling of water pipelines, however this is not of particular concern in Canberra due to the low mineral content of the drinking water.

Chlorine disinfection is also affected by pH. As pH increases the disinfection potential of chlorine decreases. However, as pH decreases the corrosion potential of the water increases, which may lead to increased levels of contaminants, for example, heavy metals, in the water and damage to assets. It is therefore necessary to balance pH in the network to minimise corrosion while ensuring effective disinfection is maintained. The ADWG advises that *"Chlorine disinfection efficiency is impaired above pH 8.0…"*. When high pH is detected in the customer tap sampling program the chlorine and microbiological results are reviewed to identify the appropriate corrective action to be taken. Generally the initial response is to review the supply path and if practical alter the operating level of the reservoir to reduce the detention time of the water in the network.

The distribution of pH results from monitoring at customers' taps is shown in Figure 5.5.

Figure 5.5 pH levels recorded at customers' taps



Turbidity

Turbidity is a measurement of the suspended and dissolved particulates in water. The ADWG does not outline a health value, however the aesthetic value is five nephelometric units (NTU) – a level of turbidity that is just noticeable in a glass.

The distribution of turbidity results for customer taps across all four water quality zones is shown in Figure 5.6 and a summary of the results are listed in Table 5.3.

Colour

Colour is mainly present in the water because of a range of natural organic compounds – from small hydrophilic acids, proteins and amino acids to larger humic and fulvic acids. These substances originate from organic matter through, or over which, the water has passed. The ADWG does not outline a health value, however the aesthetic guideline for true colour is based on what is just noticeable in a glass of water. Results are reported in platinum-cobalt units (Pt-Co), and the aesthetic guideline is 15 Pt-Co. A summary of the results are listed in Table 5.3.

Iron

The ADWG aesthetic guideline value for iron is 0.3 mg/L, which is based on the taste threshold in water. The ADWG states that *"Insufficient data are available to determine a health-based guideline value for iron in drinking water"*. Iron is typically present in the water supply from the corrosion of iron or steel pipes or other components of the plumbing system. A summary of the results are listed in Table 5.3.

Manganese

Water percolating through soil and rocks can dissolve minerals that contain manganese. The ADWG health guideline value for manganese is 0.5 mg/L. Levels above the ADWG aesthetic guideline level of 0.1 mg/L, can cause undesirable taste and staining of clothes during washing. At concentrations above 0.1 mg/L manganese can also contribute to the formation of biofilms on the insides of pipes, which may detach during high flows and appear as black particles. A summary of the results are listed in Table 5.3.

Copper

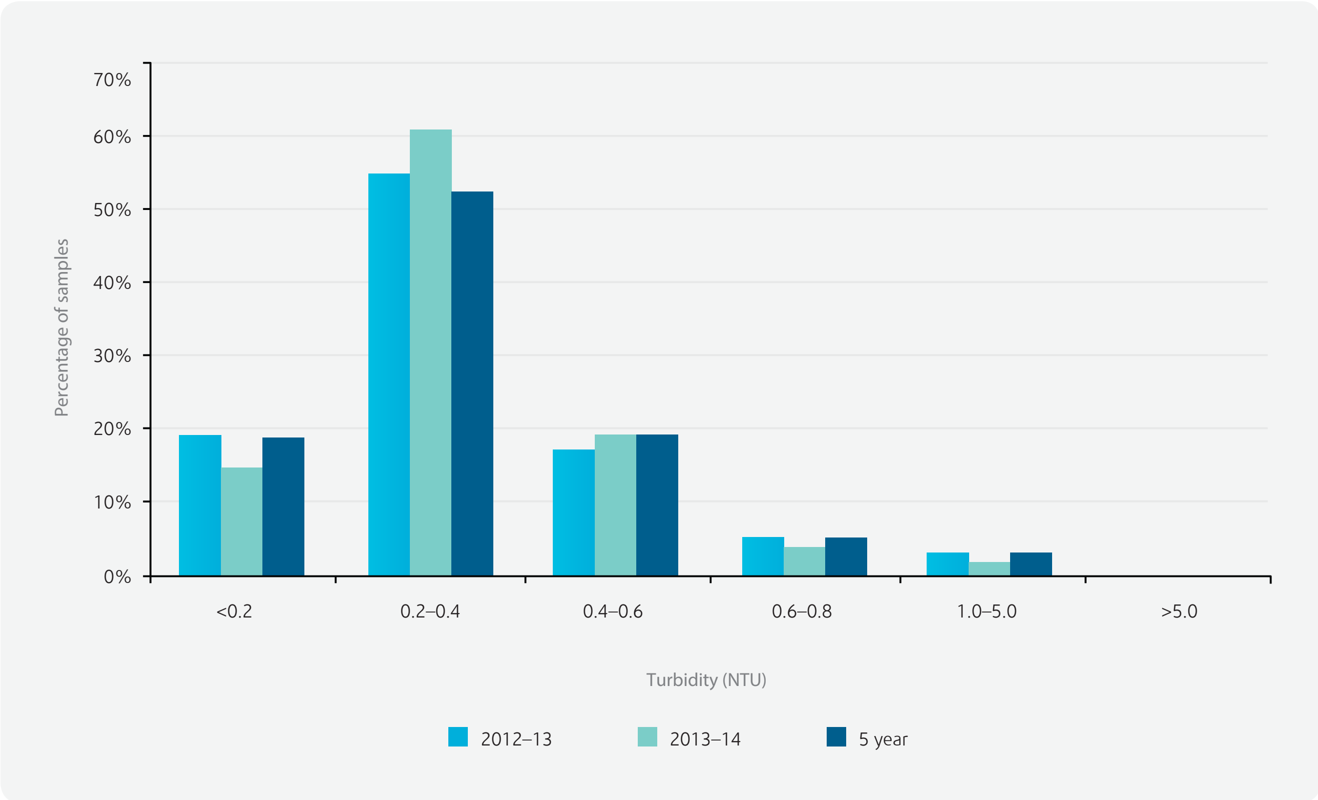
Copper is found naturally in water, generally in low concentrations. Drinking water from customers' taps may contain higher levels of copper if the water has been in contact with copper plumbing and fixtures containing copper. Sometimes copper levels may increase if water remains stagnant in the plumbing system for long periods, like overnight or while residents are away from home for an extended time. Water which contains a high level of copper often has a blue/green appearance.

The ADWG sets an aesthetic limit of 1 mg/L for copper based on the potential for staining. Copper should not exceed 2 mg/L for health considerations. The guidelines state that *"Water that has been in stagnant contact (six hours or more) with copper pipes and fittings should not be used in the preparation of food and drink."* A summary of the results are listed in Table 5.3.

Table 5.3 Summary of physical and chemical monitoring at customers' taps

Parameter	Units	ADWG Health Value	ADWG Aesthetic Value	Minimum Concentration	Maximum Concentration	Mean Concentration
Colour	Pt-Co	-	15	<1	3	1
Turbidity	NTU	-	5	0.11	2.7	0.34
Iron	mg/L	-	0.3	<0.02	0.16	<0.02
Manganese	mg/L	0.5	0.1	<0.0005	0.077	0.004
Copper	mg/L	2	1	<0.001	0.490	0.02

Figure 5.6 Turbidity levels recorded at customers' taps



6. Common water quality problems

ACTEW Water supplies water to 163,000 households in the ACT. Occasionally customers experience problems with the quality of their water supply and contact ACTEW Water for advice. Each enquiry or complaint received by ACTEW Water is investigated to determine the likely cause and, if required, corrective actions are taken. Enquiries and complaints are recorded along with the actions taken to rectify any problem.

Often issues related to water quality are short-term and may be associated with water main bursts, maintenance work or a change in usage patterns within the water supply network. Valve operations required for maintenance work may reverse the direction of flow of water, causing shearing of pipe surfaces, which may result in discoloured water. Where customers are likely to be affected by maintenance activities, ACTEW Water endeavours to notify customers.

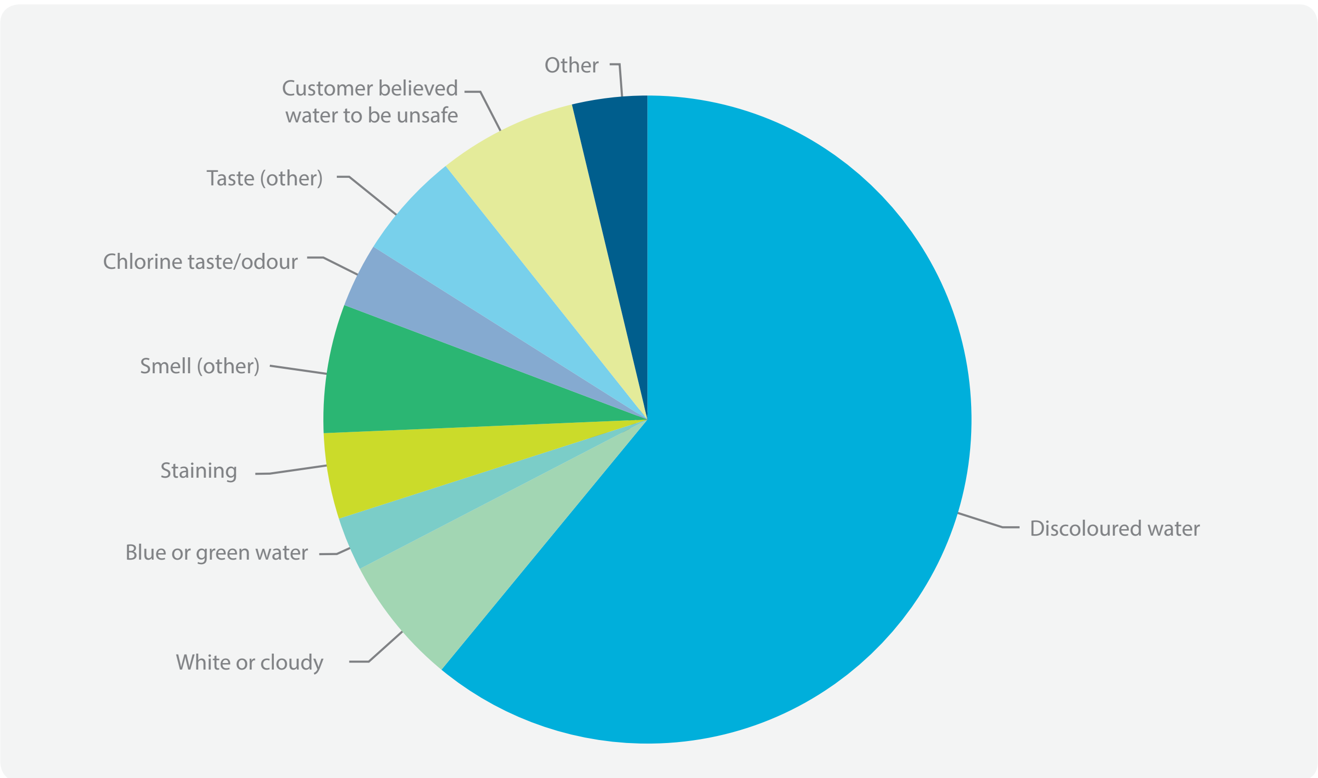
Customers are urged to contact ACTEW Water if they have any questions relating to water quality. During 2013-14 a total of 187 water quality complaints were received. Of the 187 complaints 61% of the cases were related to discoloured water.

ACTEW Water utilises feedback from the community relating to water quality and network reviews following discoloured water events to better understand the network, and the impact that our operations have on network performance. All complaints are taken seriously and we value feedback about our product.

Table 6.1 Water quality issues

Issue	Frequency	Comments
Colour; discoloured	114	Discoloured water is most often associated with maintenance work or a change in usage patterns but may also be associated with internal plumbing. Discoloured water resulting from maintenance work generally clears within a short period; however, if a customer continues to experience problems ACTEW Water may flush the mains to minimise further inconvenience.
Colour; white / cloudy	12	This usually presents as cloudy water resulting from air bubbles generated by flushing of the mains, hot water units or aerators on taps. If this does not clear after a short period of time the customer is invited to contact ACTEW Water for further advice.
Colour; blue / green	5	Blue or green water is associated with the corrosion of copper pipes.
Colour; staining	8	Deposits dislodged from domestic plumbing or from the water main can cause staining of washing or bathroom fittings. ACTEW Water's initial response is to flush the mains.
Smell; other	12	Miscellaneous smell enquires are investigated individually. These problems are usually short-term but may require investigation.
Smell or taste; chlorine	6	Chlorination is necessary for the disinfection of the water supply. Usually these enquiries relate to a change (increase or decrease) in the level of chlorine that a customer is receiving. These problems are usually aesthetic and short-term.
Taste; other	10	Miscellaneous taste enquiries are investigated individually. This also includes bitter and metallic tastes experienced by customers. These problems are usually short-term but may require further investigation.
Customer believed water to be unsafe	13	Customers may raise concern that the water is unsafe to drink. In most cases water is tested by an independent laboratory to ensure compliance with the Australian Drinking Water Guidelines.
Other	7	Issues not otherwise categorised.
TOTAL	187	

Figure 6.1 Water quality issues

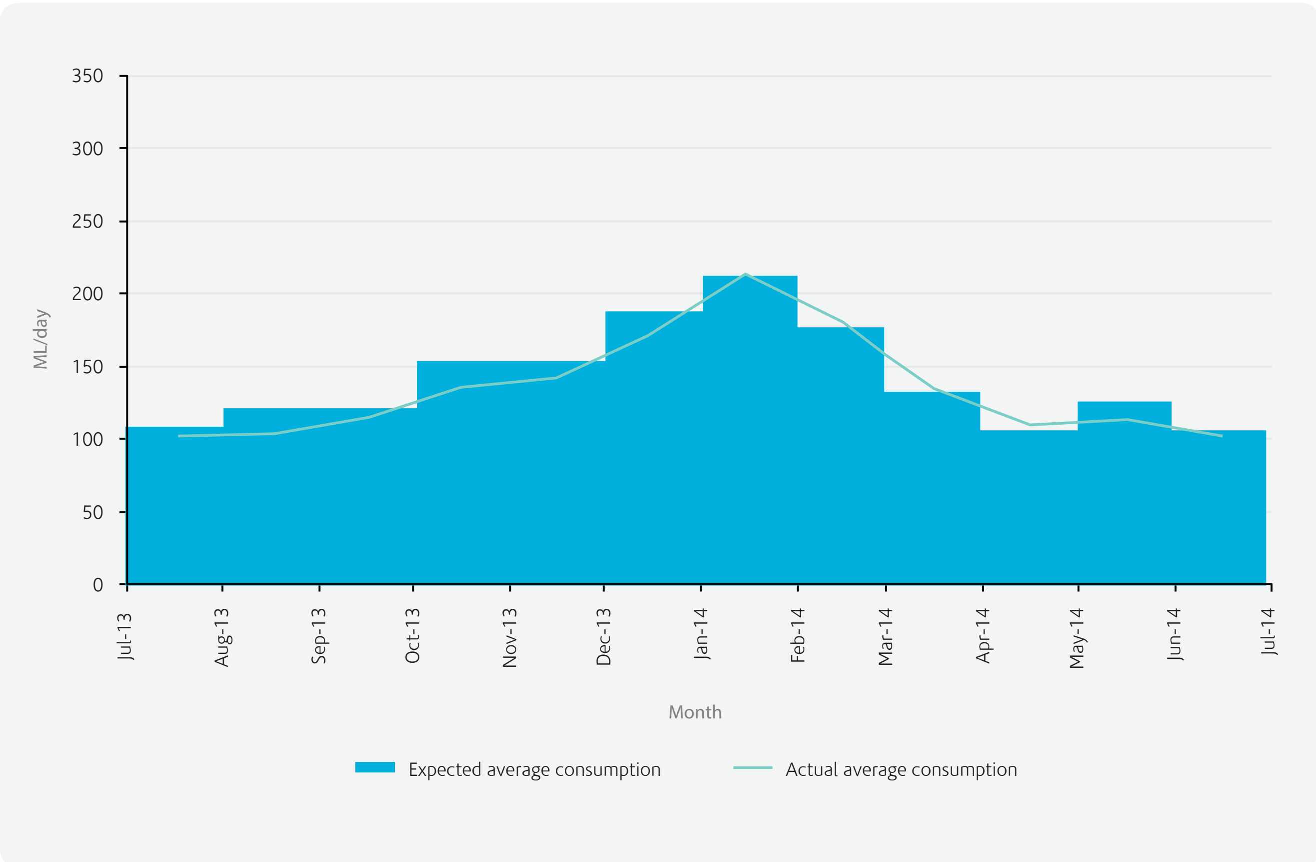


7. Managing Canberra's water quality into the future

The water quality monitoring data that ACTEW Water collects through the water supply system is evaluated against a range of seasonal factors, including rainfall, evaporation, treated water consumption and production rates. All these factors have the potential to affect the quality of the water supplied to customers.

Under Permanent Water Conservation Measures, a decrease in water consumption can be attributed to a reduction in water used for watering lawns and gardens, which is closely associated with rainfall and evaporation. Unanticipated or unseasonal changes can necessitate adjustments to operational requirements in order to maintain the quality and quantity of water. These changes include reservoir and offtake selection, chlorine dosing rates and service reservoir filling rates and times.

Figure 7.1 Average monthly water consumption for Canberra and Queanbeyan



Water quality management and improvement projects

ACTEW Water is committed to the continuous improvement of water quality management practices. The Strategic Water Quality Improvement Plan outlines drinking water quality improvement projects which are proposed and underway in the ACT drinking water supply system. Many of these are longer term projects and updates of the status of these projects along with any new projects are outlined in this plan.

A selection of projects from 2013–14 and those planned for 2014–15 are detailed below:

Water quality risk management

- **'Aquality' gap analysis and assessment.** The Water Services Association of Australia (WSAA) provides a continuous improvement tool called Aquality. ACTEW Water has utilised this tool to help identify gaps and opportunities for improvement in its water quality risk management system. The 12 key elements of the ADWG were assessed, actions that have arisen from the analysis have been prioritised and work has commenced on several of the highest priority items.
- **Supply chain hazard analysis and risk assessment.** Hazard analysis and risk assessments conducted on the water supply chain are currently being reviewed and updated. A full supply chain (from catchment to tap) assessment will be undertaken to ensure all hazards have been identified and mitigation measures have been implemented to reduce the risks to an acceptable level.

Source Water Protection Program

- **ACT Regional Source Water Protection Strategy.** Based on the success of the five year Source Water Protection Pilot Program, ACTEW Water will continue to implement a source water protection strategy. The strategy will take a three pillared approach to understanding and responding to the risks in the region's drinking water supply catchments. The foundation pillar is to implement water supply catchment risk plans which document the hazards to the raw water supply and outline ACTEW Water's agreed management responses. The second pillar is

the continuing engagement by ACTEW Water to ensure that the development or adaptation of legislation and policy supports the protection of source water quality. Thirdly, ACTEW Water will continue to promote awareness of the impact of human activities on water quality and the objectives of source water protection both internally within the organisation, as well as across the broader ACT and regional community.

- **Schools Education Program.** This program focussed on schools in the Tuggeranong area and the Cooma region, targeting students residing within the Murrumbidgee River catchment. The program provided hands on experience to students in water quality monitoring and education on catchment protection. The resources provided by ACTEW Water included the documentary DVD "Triple trickle", produced under the grants program and distributed to all schools in the ACT. The documentary educated viewers on the origin and flow path of the three rivers providing the ACTs drinking water supply.
- **Land Management Improvement Program.** This program provided opportunities to rural landholders within the Murrumbidgee River and Burra Creek catchments to enhance the quality of runoff from lands as a result of land management practices. ACTEW Water provided incentive funding to enable landholders to control livestock access to watercourses, maximise ground cover and plantings to stabilise degraded riparian zones.

Applied research and development projects related to water quality assessment or improvement

- **Assessment of real time water quality monitoring instruments.** Decisions regarding the operations of drinking water and sewage treatment plants are often based on data that is difficult to collect, hours to days old and or based on a surrogate of the parameter that is actually required. ACTEW Water embarked on a project to test new real time analytical technology for precision and accuracy of required parameters. This technology is largely untested in Australia and this project aimed to validate the equipment for operational use. The project was trialled for over six months at Mount Stromlo WTP on Bendora Reservoir water. During this time the instruments were able to effectively measure online water quality parameters to a satisfactory level of accuracy. Upon completing the trial it was decided that the technology was best suited to run on river waters, such as Murrumbidgee River. Given that it is not anticipated to use Murrumbidgee River as a supplementary source of drinking water for a number of years, it was not necessary to install online monitoring at the site. The installation will be considered if routine abstraction from the Murrumbidgee River was to occur in the future.

Water source management

- **Enlarged Cotter Dam Biodiversity Offsets Implementation Program (ECD BOIP**). As specified in Section 8.3.3 of the ACT Environmental Impact Statement for the Enlarged Cotter Dam (ECD), ACTEW Water is to provide a compensatory biodiversity offset area of approximately 400 hectares across the Lower Cotter Catchment (LCC), and implement a program of works as outlined in the ECD Biodiversity Offsets Implementation Plan (2009). The program is not specifically targeted at improving water quality however works such as erosion control, blackberry and willow control and revegetation have implications for the improvement of water quality across the offsets area, and specifically for Pierces Creek and Paddys River. Additionally, a Memorandum of Understanding (MoU) has been developed between ACT Parks and Conservation Service (PCS) and ACTEW Water to provide funding for maintenance of roads and erosion control structures across the LCC.

Water treatment plants

- **Mount Stromlo WTP filter to waste.** The Mount Stromlo WTP filter to waste facility was completed in 2014 and is now operational. It is designed to allow disposal of turbid water rather than blending the water back into the filtered water stream. This system is current industry "good practice" for higher turbidity waters, such as water that may be generated when treating water from the Murrumbidgee River.
- **Googong WTP fluoride system upgrade.** The upgrade of the fluoride dosing system at Googong WTP will improve the safety and reliability of the system and bring it up to the condition required in the NSW Code of Practice for the fluoridation of public water supplies. The project will also bring the system into line with the current work safety standards, in particular, manual handling and dust control. The new system is currently under construction and is due for completion in 2014-2015.
- **Googong powdered activated carbon (PAC) and inlet channel mixing upgrade.** The PAC system enables taste and odour compounds, algal toxins and other organic compounds to be removed from the raw water at the plant. The current facility was installed in 2004 at a time where the need for PAC dosing was identified but operation was expected to be intermittent. In recent years the reliance on the PAC dosing system at Googong WTP has increased due to an increase in the presence of algal metabolites and other organics in the raw water. It has been identified that an upgrade to the existing PAC dosing system at Googong WTP is required. This project will be constructed in conjunction with the Fluoride Upgrade Project and is due for completion in 2014-2015.

Distribution system

- **Mains replacement.** ACTEW Water has identified several sections of aging mains within the reticulation network. These mains are typically unlined cast iron mains which have a significant build-up of tuberculation or rust nodes inside the pipes. The build-up has been identified as the cause of reduced hydraulic capacity which has resulted in these mains not meeting ACTEW Water standards for flow rates. The build-up has also been identified to cause discoloured water generally due to iron and manganese deposits, taste and odour issues, turbidity and lower chlorine residual. There are several methods available for removing the build-up, however most removal methods will result in worse water quality and increased customer complaints. The preferred methods for remediation are lining or mains replacement. This project commenced in 2008 and is a long-term ongoing project to improve the quality of ACTEW Water infrastructure.

8. Cooperation between ACT Health and ACTEW Water

In February 2007 the revised Public Health (Drinking Water) Code of Practice was issued by ACT Health. This document replaces the Drinking Water Quality Code of Practice (2000) and takes into account updates of the ADWG.

The Public Health (Drinking Water) Code of Practice (2007) sets out operational, communication, reporting and response requirements for both organisations to ensure that optimal drinking water quality is supplied to Canberra and Queanbeyan.

Copies of The Public Health (Drinking Water) Code of Practice (2007) are available from the ACT Health website at www.health.act.gov.au

Water quality notifications to ACT Health

During the year, a number of notifications to ACT Health were issued. These notifiable incidents are captured in Table 8.1.

Table 8.1 Summary of the notifications and the action taken by ACTEW Water

Criteria	Date	Source	Incident
High risk Cyanobacteria >2000 cells/mL or a total biovolume 0.5mm³/L	03/07/13	Googong Storage Reservoir	High risk cyanobacteria *Anabaena* and *Anabaenopsis* were detected at a sample point located upstream of the Googong Storage Reservoir. Googong WTP was not operating at the time of the detection.
Chlorine above ADWG health guideline within the distribution system at a customer point of supply	18/09/13	Water within the distribution system at customer tap	Chlorine was detected at a customer tap exceeding the ADWG health value after a manual re-chlorination of a service reservoir. The supply zone of the reservoir was immediately flushed to remove any residual high chlorine and a change to procedure was made to prevent reoccurrence of the incident.
Cyanobacteria >2000 cells/mL or a total biovolume 0.5mm³/L	19/12/13	Cotter Storage Reservoir	High risk cyanobacteria *Anabaena* was detected at one surface sample point within the Cotter Storage Reservoir. *Anabaena* and *Microcystis* were also detected at a sample point located upstream of the Cotter Storage Reservoir. Water was not being abstracted from the Cotter Storage Reservoir at the time of these detections.
Cyanobacteria >2000 cells/mL or a total biovolume 0.5mm³/L	23/12/13	Googong Storage Reservoir	High risk cyanobacteria *Anabaena* was detected at a sample point within the Googong Storage Reservoir at the surface and 3 m. *Anabaena* was also detected at a sample point located upstream of the reservoir. At the time of the detection Googong WTP was not operating.
Thermotolerant coliforms or *E.coli* within the distribution system at a customer point of supply	05/01/14	Water within the distribution system at customer tap	*E.Coli* was detected at a customer tap. An immediate investigation into the water quality in the supply zone was conducted. Additional sampling was undertaken, including a re-sample of the original positive location. All additional sampling results were negative for *E.coli*. In addition it was found that the original sample had a high concentration of free chlorine (0.90 mg/L). It was deemed that the original sample was likely to have been cross contaminated during sample collection or transport and did not indicate a problem with the drinking water supply system.

Criteria	Date	Source	Incident
Inorganic or organic chemicals (plasticiser) above the ADWG health guideline at a customer point of supply	01/02/14	Water within the distribution system at customer tap	A plasticiser (Bis-2-(ethylhexyl) phthalate) was detected at a customer tap exceeding the ADWG. An immediate investigation with respect to this compound at this location and surrounding locations did not identify a widespread issue. The results of a re-test of the original sample and a re-sample of the location returned results less than the limit of reporting.
Potential imminent public health risk	04/03/14	Mount Stromlo WTP	The Mount Stromlo centrifuge feed material had contaminated the service water system which supplies the fluoride batching system. The WTP was immediately shut down and the treated water supply was isolated. At no stage did any potentially contaminated water enter the water distribution system outside of the WTP. An investigation into the incident discovered a piece of foreign material prevented a valve from closing. The material was removed, the system cleaned and returned to service.
Cyanobacteria >2000 cells/mL or a total biovolume 0.5mm^3/L	11/4/14	Googong Storage Reservoir	High risk cyanobacteria *Anabaena* was detected at a sample point within the Googong Storage Reservoir at a depth of 9 m. At the time of the detection Googong WTP was not operating.
Thermotolerant coliforms *E.coli* within the distribution system at a service reservoir	22/05/14	Service Reservoir	*E.Coli* was detected at a service reservoir after routine maintenance was performed. The service reservoir was immediately isolated from the water distribution network and an investigation into the water quality in the supply zone was conducted. Additional sampling was undertaken, including a re-sample of the original location. All results from additional sampling were negative for *E.coli*. Further investigation suggested that the positive result may have occurred due to cross contamination of the sample during collection or transport. It was deemed that there was no adverse health risk posed to the public and the service reservoir was returned to service.
Inorganic or organic chemicals above the ADWG health guideline at a customer point of supply	28/05/14	Water within the distribution system at a service reservoir and at a customer tap	A plasticiser (Bis-2-(ethylhexyl) phthalate) was detected at a customer tap exceeding the ADWG. An immediate investigation with respect to this compound was commenced.
Inorganic or organic chemicals above the ADWG health guideline at a customer point of supply	11/06/14	Water within the distribution system at a customer tap	A plasticiser (Bis-2-(ethylhexyl) phthalate) was detected exceeding the ADWG. A Root Cause Analysis (RCA) has been conducted and the investigation into the detections is continuing. Additional sampling has also commenced to try to find the possible source. The ADWG advises that food is the major source of exposure.

9. Laboratory analysis

ACTEW Water uses ALS Global to collect and analyse drinking water samples. The monitoring program is defined by a Service Level Agreement, which is revised annually to reflect ACTEW Water's changing needs and priorities.

ALS Global operates a NATA-registered laboratory. NATA provides specific technical evaluation combined with international recognition by its overseas counterparts, enabling laboratories accredited by NATA to be recognised worldwide.

As part of its NATA registration, ALS Global participates in regular audits and proficiency testing whereby results for identical samples are compared with other NATA-registered laboratories. The most recent NATA audits carried out in the chemistry area in February 2014 and in the biological area in July 2013 identified no accreditation non-compliance. All results for NATA proficiency testing in the past 12 months were within the "acceptable" statistical range.

The Canberra distribution network is divided into four water quality zones based on population, hydraulic characteristics and geography. These zones are used in ACTEW Water operations to assess the quality of drinking water supplied to the customers' tap. All data is presented in the following tables;

- **Table 9.1** Summary data for all ACTEW Water's water quality zones
- **Table 9.2** Summary data for water quality zone 1: North Canberra and Gungahlin
- **Table 9.3** Summary data for water quality zone 2: Belconnen
- **Table 9.4** Summary data for water quality zone 3: South Canberra, Woden and Weston Creek
- **Table 9.5** Summary data for water quality zone 4:Tuggeranong

Table 9.1 Summary data for all ACTEW Water's water quality zones

Analyte	Method ID	Units	ADWG	Limit of Reporting	Number of Samples	Minimum	Maximum	Mean	95th Percentile
1 Naphthylamine	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
1,2 Dichlorobenzene	US EPA 3510/8270	ug/L	1500	<2	14	<2	<2	<2	<2
1,2 Dichlorobenzene	US EPA 8270/8260	ug/L	1500	<20	106	<20	<20	<20	<20
1,2,4 Trichlorobenzene	US EPA 8270/8260	ug/L	30	<20	106	<20	<20	<20	<20
1,2,4 Trichlorobenzene	US EPA 3510/8270	ug/L	30	<2	14	<2	<2	<2	<2
1,3 Dichlorobenzene	US EPA 8270/8260	ug/L	-	<20	106	<20	<20	<20	<20
1,3 Dichlorobenzene	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
1,3,5 Trinitrobenzene	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
1,4 Dichlorobenzene	US EPA 8270/8260	ug/L	40	<20	106	<20	<20	<20	<20
1,4 Dichlorobenzene	US EPA 3510/8270	ug/L	40	<2	14	<2	<2	<2	<2
2 Chloronaphthalene	US EPA 8270/8260	ug/L	-	<20	106	<20	<20	<20	<20
2 Chloronaphthalene	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
2 Chlorophenol	US EPA 8270/8260	ug/L	300	<10	106	<10	<10	<10	<10
2 Chlorophenol	US EPA 3510/8270	ug/L	300	<2	14	<2	<2	<2	<2
2 Methylnaphthalene	US EPA 8270/8260	ug/L	-	<10	106	<10	<10	<10	<10
2 Methylnaphthalene	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
2 Methylphenol	US EPA 8270/8260	ug/L	-	<10	106	<10	<10	<10	<10
2 Methylphenol	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2

Analyte	Method ID	Units	ADWG	Limit of Reporting	Number of Samples	Minimum	Maximum	Mean	95th Percentile
2 Nitroaniline	US EPA 8270/8260	ug/L	-	<20	106	<20	<20	<20	<20
2 Nitroaniline	US EPA 3510/8270	ug/L	-	<4	14	<4	<4	<4	<4
2 Nitrophenol	US EPA 8270/8260	ug/L	-	<10	106	<10	<20	<10	<10
2 Nitrophenol	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
2 Picoline	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
2,3,4,6 Tetrachlorophenol	US EPA 8270/8260	ug/L	-	<20	106	<20	<20	<20	<20
2,3,4,6 Tetrachlorophenol	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
2,4 Dichlorophenol	US EPA 8270/8260	ug/L	200	<10	106	<10	<10	<10	<10
2,4 Dichlorophenol	US EPA 3510/8270	ug/L	200	<2	14	<2	<2	<2	<2
2,4 Dimethylphenol	US EPA 8270/8260	ug/L	-	<10	106	<10	<10	<10	<10
2,4 Dimethylphenol	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
2,4 Dinitrotoluene	US EPA 8270/8260	ug/L	-	<20	106	<20	<20	<20	<20
2,4 Dinitrotoluene	US EPA 3510/8270	ug/L	-	<4	14	<4	<4	<4	<4
2,4,5 Trichlorophenol	US EPA 8270/8260	ug/L	-	<20	106	<20	<20	<20	<20
2,4,5 Trichlorophenol	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
2,4,6 Trichlorophenol	US EPA 8270/8260	ug/L	20	<20	106	<20	<20	<20	<20
2,4,6 Trichlorophenol	US EPA 3510/8270	ug/L	20	<2	14	<2	<2	<2	<2
2,6 Dichlorophenol	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
2,6 Dichlorophenol	US EPA 8270/8260	ug/L	-	<10	106	<10	<10	<10	<10
2,6 Dinitrotoluene	US EPA 8270/8260	ug/L	-	<20	106	<20	<20	<20	<20
2,6 Dinitrotoluene	US EPA 3510/8270	ug/L	-	<4	14	<4	<4	<4	<4
3 Methylcholanthrene	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
3 Nitroaniline	US EPA 8270/8260	ug/L	-	<20	106	<20	<20	<20	<20
3 Nitroaniline	US EPA 3510/8270	ug/L	-	<4	14	<4	<4	<4	<4
3,3 Dichlorobenzidine	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
3,4 Methylphenol	US EPA 8270/8260	ug/L	-	<20	106	<20	<20	<20	<20
3,4 Methylphenol	US EPA 3510/8270	ug/L	-	<4	14	<4	<4	<4	<4
4 Aminobiphenyl	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
4 Bromophenyl phenyl ether	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
4 Bromophenyl phenyl ether	US EPA 8270/8260	ug/L	-	<20	106	<20	<20	<20	<20
4 Chloro 3 methylphenol	US EPA 8270/8260	ug/L	-	<20	106	<20	<20	<20	<20
4 Chloro 3 methylphenol	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
4 Chloroaniline	US EPA 8270/8260	ug/L	-	<20	106	<20	<20	<20	<20
4 Chloroaniline	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
4 Chlorophenyl phenyl ether	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
4 Chlorophenyl phenyl ether	US EPA 8270/8260	ug/L	-	<20	106	<20	<20	<20	<20
4 Nitroaniline	US EPA 8270/8260	ug/L	-	<20	106	<20	<20	<20	<20
4 Nitroaniline	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
4 Nitroquinoline N oxide	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
4,4 DDD	US EPA 8270/8260	ug/L	-	<20	106	<20	<20	<20	<20

Analyte	Method ID	Units	ADWG	Limit of Reporting	Number of Samples	Minimum	Maximum	Mean	95th Percentile
4,4 DDD	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
4,4 DDE	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
4,4 DDE	US EPA 8270/8260	ug/L	-	<20	106	<20	<20	<20	<20
4,4 DDT	US EPA 3510/8270	ug/L	9	<4	14	<4	<4	<4	<4
4,4 DDT	US EPA 8270/8260	ug/L	9	<20	106	<20	<20	<20	<20
5 Nitro o toluidine	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
7,12 Dimethylbenz(a) anthracene	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
a BHC	US EPA 8270/8260	ug/L	-	<20	106	<20	<20	<20	<20
Acenaphthene	US EPA 8270/8260	ug/L	-	<10	106	<10	<10	<10	<10
Acenaphthene	US EPA 3510/8270	ug/L	-	<1	118	<1	<1	<1	<1
Acenaphthene	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
Acenaphthylene	US EPA 8270/8260	ug/L	-	<10	106	<10	<10	<10	<10
Acenaphthylene	US EPA 3510/8270	ug/L	-	<1	118	<1	<1	<1	<1
Acenaphthylene	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
Acetophenone	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
Aldrin	US EPA 8270/8260	ug/L	0.3	<20	106	<20	<20	<20	<20
Aldrin	US EPA 3510/8270	ug/L	0.3	<2	14	<2	<2	<2	<2
Alkalinity bicarb	APHA 2320 A/B	mg/L	-	<0.1	240	11.3	88.8	37.6	41.8
Alkalinity carb	APHA 2320 A/B	mg/L	-	<0.1	240	<0.1	7.8	0.1	<0.1
Alkalinity hydrox	APHA 2320 A/B	mg/L	-	<0.1	240	<0.1	<0.1	<0.1	<0.1
Alkalinity total	APHA 2320 A/B	mg/L	-	<1	240	11	89	38	42
alpha BHC	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
alpha Endosulfan	US EPA 3510/8270	ug/L	20	<2	14	<2	<2	<2	<2
Aluminium Acid Soluble	US EPA 200.8	ug/L	-	<5	120	18	110	33	48
Aluminium Total	US EPA 200.7	mg/L	-	<0.02	30	0.03	0.07	0.04	0.05
Aluminium Total	US EPA 200.8	ug/L	-	<9	120	24	190	44	70
Aniline	US EPA 8270/8260	ug/L	-	<20	106	<20	<20	<20	<20
Aniline	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
Anthracene	US EPA 8270/8260	ug/L	-	<10	106	<10	<10	<10	<10
Anthracene	US EPA 3510/8270	ug/L	-	<1	118	<1	<1	<1	<1
Anthracene	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
Antimony Total Screen	US EPA 200.8	ug/L	3	<3	120	<3	<3	<3	<3
Arsenic Total	US EPA 200.8	ug/L	10	<1	120	<1	<1	<1	<1
Asbestos	AS 4964-2000	Present/ Absent	-	Absent	120	Absent	Present	-	-
Azobenzene	US EPA 8270/8260	ug/L	-	<20	106	<20	<20	<20	<20
Azobenzene	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
b BHC	US EPA 8270/8260	ug/L	-	<20	106	<20	<20	<20	<20
Barium Total	US EPA 200.8	ug/L	2000	<2	120	2	11	4	7

Analyte	Method ID	Units	ADWG	Limit of Reporting	Number of Samples	Minimum	Maximum	Mean	95th Percentile
Benz(a)anthracene	US EPA 8270/8260	ug/L	-	<10	106	<10	<10	<10	<10
Benz(a)anthracene	US EPA 3510/8270	ug/L	-	<1	118	<1	<1	<1	<1
Benz(a)anthracene	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
Benzo (b,k) fluoranthene	US EPA 8270/8260	ug/L	-	<20	106	<20	<20	<20	<20
Benzo(a)pyrene	US EPA 8270/8260	ug/L	0.01	<10	106	<10	<10	<10	<10
Benzo(a)pyrene	US EPA 3510/8270	ug/L	0.01	<0.5	118	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	US EPA 3510/8270	ug/L	0.01	<2	14	<2	<2	<2	<2
Benzo(b) & Benzo(k) fluoranthene	US EPA 3510/8270	ug/L	-	<4	14	<4	<4	<4	<4
Benzo(b)fluoranthene	US EPA 3510/8270	ug/L	-	<1	118	<1	<1	<1	<1
Benzo(g,h,i)perylene	US EPA 8270/8260	ug/L	-	<10	106	<10	<10	<10	<10
Benzo(g,h,i)perylene	US EPA 3510/8270	ug/L	-	<1	118	<1	<1	<1	<1
Benzo(g,h,i)perylene	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
Benzo(k)fluoranthene	US EPA 3510/8270	ug/L	-	<1	118	<1	<1	<1	<1
Benzyl alcohol	US EPA 8270/8260	ug/L	-	<20	106	<20	<20	<20	<20
Beryllium Total	US EPA 200.8	ug/L	60	<0.1	120	<0.1	<0.1	<0.1	<0.1
beta BHC	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
beta Endosulfan	US EPA 3510/8270	ug/L	20	<2	14	<2	<2	<2	<2
Bis(2-chloroisopropyl) ether	US EPA 8270/8260	ug/L	-	<20	106	<20	<20	<20	<20
Bis(2-chloroethoxy) methane	US EPA 8270/8260	ug/L	-	<20	106	<20	<20	<20	<20
Bis(2-chloroethoxy) methane	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
Bis(2-chloroethyl) ether	US EPA 8270/8260	ug/L	-	<20	106	<20	<20	<20	<20
Bis(2-chloroethyl) ether	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
Bis(2-ethylhexyl) phthalate	US EPA 8270/8260	ug/L	10	<20	106	<20	<20	<20	<20
Bis(2-ethylhexyl) phthalate	US EPA 3510/8270	ug/L	10	<10	14	<5	16	<5	13
Boron Total	US EPA 200.7	mg/L	4	<0.01	40	<0.01	0.03	<0.01	<0.01
Bromoacetic Acid	US EPA SW 846 Method 8260 B	ug/L	-	<5	239	<5	<5	<5	<5
Bromochloroacetic Acid	US EPA SW 846 Method 8260 B	ug/L	-	<1	239	<1	6	1.6	5
Bromodichloroacetic Acid	US EPA SW 846 Method 8260 B	ug/L	-	<1	239	<1	10	2.4	7
Bromoform	US EPA 5030B/5035/8260B	mg/L	-	<0.001	72	<0.001	<0.005	<0.001	<0.001
Bromoform	HP 228-135	ug/L	-	<1	168	<1	<1	<1	<1
Butyl benzyl phthalate	US EPA 8270/8260	ug/L	-	<10	106	<10	<20	<10	<10
Butyl benzyl phthalate	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
Cadmium Total	US EPA 200.8	ug/L	2	<0.05	120	<0.05	<0.05	<0.05	<0.05
Calcium Dissolved	US EPA 200.7	mg/L	-	<0.05	120	11	21	14	19
Carbazole	US EPA 8270/8260	ug/L	-	<20	106	<20	<20	<20	<20
Carbazole	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2

Analyte	Method ID	Units	ADWG	Limit of Reporting	Number of Samples	Minimum	Maximum	Mean	95th Percentile
Chlorfenvinphos	US EPA 3510/8270	ug/L	2	<2	14	<2	<2	<2	<2
Chloride	APHA 21st Ed. 2005, Part 4110 B	mg/L	-	<0.1	48	<0.1	7.5	3.9	7.4
Chlorine Combined	APHA 4500-CL G	mg/L	-	<0.03	1008	<0.03	1.80	0.10	0.25
Chlorine Free	APHA 4500-CL G	mg/L	-	<0.03	1008	0.03	6.20	0.74	1.12
Chlorine Total	APHA 4500-CL G	mg/L	5	<0.03	1008	0.06	8.00	0.84	1.22
Chlorobenzilate	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
Chloroform	US EPA 5030B/5035/8260B	mg/L	-	<0.001	72	0.015	0.057	0.028	0.038
Chloroform	HP 228-135	ug/L	-	<1	168	8	140	28	64
Chlorpyrifos	US EPA 8270/8260	ug/L	10	<20	106	<20	<20	<20	<20
Chlorpyrifos	US EPA 3510/8270	ug/L	10	<2	14	<2	<2	<2	<2
Chlorpyrifos-methyl	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
Chromium Total	US EPA 200.8	ug/L	50	<2	120	<2	<2	<2	<2
Chrysene	US EPA 8270/8260	ug/L	-	<10	106	<10	<10	<10	<10
Chrysene	US EPA 3510/8270	ug/L	-	<1	118	<1	<1	<1	<1
Chrysene	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
Cobalt Total	US EPA 200.8	ug/L	-	<0.2	120	<0.2	0.3	<0.2	<0.2
Conductivity	APHA 2510 B	uS/cm	-	<2	128	84	190	114	190
Copper Total	US EPA 200.8	ug/L	2000	<1	120	<1	170	19	56
Copper Total	US EPA 200.7	ug/L	2000	<1	360	<1	490	25	67
Cyanide	APHA 4500_CN	mg/L	0.08	<0.04	<0.004	<0.004	<0.004	<0.004	<0.004
d BHC	US EPA 8270/8260	ug/L	-	<20	106	<20	<20	<20	<20
delta-BHC	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
Diazinon	US EPA 8270/8260	ug/L	4	<20	106	<20	<20	<20	<20
Diazinon	US EPA 3510/8270	ug/L	4	<2	14	<2	<2	<2	<2
Dibenz(a,h)anthracene	US EPA 8270/8260	ug/L	-	<10	106	<10	<10	<10	<10
Dibenz(a,h)anthracene	US EPA 3510/8270	ug/L	-	<1	118	<1	<1	<1	<1
Dibenz(a,h)anthracene	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
Dibenzofuran	US EPA 8270/8260	ug/L	-	<20	106	<20	<20	<20	<20
Dibenzofuran	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
Dibromoacetic Acid	US EPA SW 846 Method 8260 B	ug/L	-	<1	239	<1	2	<1	<1
Dibromochloroacetic Acid	US EPA SW 846 Method 8260 B	ug/L	-	<10	239	<10	<10	<10	<10
Dibromochloromethane	US EPA 5030B/5035/8260B	mg/L	-	<0.001	72	<0.001	<0.005	<0.001	<0.001
Dibromochloromethane	HP 228-135	ug/L	-	<1	168	<1	<1	<1	<1
Dichloroacetic Acid	US EPA SW 846 Method 8260 B	ug/L	100	<10	239	<10	56	20	43

Analyte	Method ID	Units	ADWG	Limit of Reporting	Number of Samples	Minimum	Maximum	Mean	95th Percentile
Dichlorobenzidine	US EPA 8270/8260	ug/L	-	<20	106	<20	<20	<20	<20
Dichlorobromomethane	US EPA 5030B/5035/8260B	mg/L	-	<0.001	72	<0.001	0.003	0.002	0.002
Dichlorobromomethane	HP 228-135	ug/L	-	<1	168	<1	19	3	8
Dieldrin	US EPA 8270/8260	ug/L	3	<20	106	<20	<20	<20	<20
Dieldrin	US EPA 3510/8270	ug/L	3	<2	14	<2	<2	<2	<2
Diethyl phthalate	US EPA 8270/8260	ug/L	-	<10	106	<10	<10	<10	<10
Diethyl phthalate	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
Dimethoate	US EPA 8270/8260	ug/L	7	<20	106	<20	<20	<20	<20
Dimethoate	US EPA 3510/8270	ug/L	7	<2	14	<2	<2	<2	<2
Dimethyl phthalate	US EPA 8270/8260	ug/L	-	<10	106	<10	<10	<10	<10
Dimethyl phthalate	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
Dimethylaminoazobenzene	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
Di-n-butyl phthalate	US EPA 8270/8260	ug/L	-	<10	106	<10	<10	<10	<10
Di-n-butyl phthalate	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
Di-n-octyl phthalate	US EPA 8270/8260	ug/L	-	<10	106	<10	<10	<10	<10
Di-n-octyl phthalate	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
E.Coli	APHA 9223 B	MPN/100mL	<1	<1	1008	<1	1	<1	<1
Endosulfan sulfate	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
Endosulfan sulphate	US EPA 8270/8260	ug/L	-	<20	106	<20	<20	<20	<20
Endosulphan 1	US EPA 8270/8260	ug/L	20	<20	106	<20	<20	<20	<20
Endosulphan 11	US EPA 8270/8260	ug/L	20	<20	106	<20	<20	<20	<20
Endrin	US EPA 8270/8260	ug/L	-	<20	106	<20	<20	<20	<20
Endrin	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
Endrin Aldehyde	US EPA 8270/8260	ug/L	-	<20	106	<20	<20	<20	<20
Ethion	US EPA 8270/8260	ug/L	4	<20	106	<20	<20	<20	<20
Ethion	US EPA 3510/8270	ug/L	4	<2	14	<2	<2	<2	<2
Fenitrothion	US EPA 8270/8260	ug/L	7	<20	106	<20	<20	<20	<20
Fenthion	US EPA 3510/8270	ug/L	7	<2	14	<2	<2	<2	<2
Fluoranthene	US EPA 8270/8260	ug/L	-	<10	106	<10	<10	<10	<10
Fluoranthene	US EPA 3510/8270	ug/L	-	<1	118	<1	<1	<1	<1
Fluoranthene	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
Fluorene	US EPA 8270/8260	ug/L	-	<10	106	<10	<20	<10	<10
Fluorene	US EPA 3510/8270	ug/L	-	<1	118	<1	<1	<1	<1
Fluorene	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
Fluoride	APHA 4500-FC	mg/L	1.5	<0.1	120	0.3	0.9	0.8	0.9
g BHC (Lindane)	US EPA 8270/8260	ug/L	10	<20	106	<20	<20	<20	<20
gamma-BHC	US EPA 3510/8270	ug/L	10	<2	14	<2	<2	<2	<2
Hardness Total	APHA 2340 B	mg/L	-	<0.1	118	30	64	41	62

Analyte	Method ID	Units	ADWG	Limit of Reporting	Number of Samples	Minimum	Maximum	Mean	95th Percentile
Heptachlor	US EPA 8270/8260	ug/L	0.3	<20	106	<20	<20	<20	<20
Heptachlor	US EPA 3510/8270	ug/L	0.3	<2	14	<2	<2	<2	<2
Heptachlor epoxide	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
Heptachlor epoxide	US EPA 8270/8260	ug/L	-	<20	106	<20	<20	<20	<20
Heterotrophic Plate Count	APHA 9215 B	CFU/mL	-	<1	1008	<1	220	2	6
Hexachloro 1,3 butadiene	US EPA 8270/8260	ug/L	0.7	<20	106	<20	<20	<20	<20
Hexachlorobutadiene	US EPA 3510/8270	ug/L	0.7	<2	14	<2	<2	<2	<2
Hexachlorobenzene	US EPA 8270/8260	ug/L	-	<20	106	<20	<20	<20	<20
Hexachlorobenzene	US EPA 3510/8270	ug/L	-	<4	14	<4	<4	<4	<4
Hexachlorocyclopentadiene	US EPA 8270/8260	ug/L	-	<20	106	<20	<20	<20	<20
Hexachlorocyclopentadiene	US EPA 3510/8270	ug/L	-	<10	14	<10	<10	<10	<10
Hexachloroethane	US EPA 8270/8260	ug/L	-	<20	106	<20	<20	<20	<20
Hexachloroethane	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
Hexachloropropylene	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
Indeno(1,2,3 cd)pyrene	US EPA 8270/8260	ug/L	-	<10	106	<10	<10	<10	<10
Indeno(1,2,3,cd)pyrene	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
Indeno(1,2,3,cd)pyrene	US EPA 3510/8270	ug/L	-	<1	118	<1	<1	<1	<1
Iodide	ASTM D19	mg/L	0.5	<0.05	48	<0.05	<0.05	<0.05	<0.05
Iron Total	US EPA 200.7	mg/L	-	<0.02	240	<0.02	0.16	<0.02	<0.02
Isophorone	US EPA 8270/8260	ug/L	-	<20	106	<20	<20	<20	<20
Isophorone	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
Lead Total	US EPA 200.8	ug/L	10	<0.2	120	<0.2	1.5	0.2	0.6
Lead Total	US EPA 200.8	ug/L	10	<0.2	120	<0.2	2	0.2	0.7
Magnesium Dissolved	US EPA 200.7	mg/L	-	<0.05	120	0.58	3.80	1.42	3.80
Malathion	US EPA 8270/8260	ug/L	70	<20	106	<20	<20	<20	<20
Malathion	US EPA 3510/8270	ug/L	70	<2	14	<2	<2	<2	<2
Manganese Total	US EPA 200.8	mg/L	0.5	<0.001	480	0.001	0.076	0.004	0.011
Manganese Total	US EPA 200.8	ug/L	500	<0.5	120	<0.5	77.0	4.5	10.1
Mercury Total	USEPA 200.8	ug/L	1	<0.1	40	<0.1	0.2	<0.1	<0.1
Methapyrilene	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
Molybdenum Total	US EPA 200.8	ug/L	50	<1	120	<1	16	<1	<1
Monochloroacetic Acid	US EPA SW 846 Method 8260 B	ug/L	-	<1	239	<1	4	1.2	3.1
N-2-Fluorenyl Acetamide	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
Naphthalene	US EPA 8270/8260	ug/L	-	<10	106	<10	<10	<10	<10
Naphthalene	US EPA 3510/8270	ug/L	-	<0.1	118	<1.0	<1.0	<1.0	<1.0
Naphthalene	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
Nickel Total	US EPA 200.8	ug/L	20	<1	120	<1	2	<1	<1
Nitrate	APHA 21st Ed. 2005, Part 4110 B	mg/L	50	<0.1	48	<0.1	0.2	<0.1	0.2

Analyte	Method ID	Units	ADWG	Limit of Reporting	Number of Samples	Minimum	Maximum	Mean	95th Percentile
Nitrobenzene	US EPA 8270/8260	ug/L	-	<20	106	<20	<20	<20	<20
Nitrobenzene	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
N-Nitrosodibutylamine	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
N-Nitrosodiethylamine	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
N-Nitrosodimethylamine	US EPA 8270/8260	ug/L	0.1	<20	106	<20	<20	<20	<20
N-Nitrosodi-n-propylamine	US EPA 8270/8260	ug/L	-	<20	106	<20	<20	<20	<20
N-Nitrosodi-n-propylamine	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
N-Nitrosodiphenyl & Diphenylamine	US EPA 3510/8270	ug/L	-	<4	14	<4	<4	<4	<4
N-Nitrosodiphenylamine	US EPA 8270/8260	ug/L	-	<20	106	<20	<20	<20	<20
N-Nitrosomethylethylamine	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
N-Nitrosomorpholine	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
N-Nitrosopiperidine	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
N-Nitrosopyrrolidine	US EPA 3510/8270	ug/L	-	<4	14	<4	<4	<4	<4
Pentachlorobenzene	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
Pentachloronitrobenzene	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
Pentachlorophenol	US EPA 8270/8260	ug/L	10	<20	106	<20	<20	<20	<20
Pentachlorophenol	US EPA 3510/8270	ug/L	10	<4	14	<4	<4	<4	<4
pH	APHA 4500-H B	pH	-	<1	1008	6.6	9	7.7	8.1
Phenacetin	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
Phenanthrene	US EPA 8270/8260	ug/L	-	<10	106	<10	<10	<10	<10
Phenanthrene	US EPA 3510/8270	ug/L	-	<0.1	118	<1	<1	<1	<1
Phenanthrene	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
Phenol	US EPA 8270/8260	ug/L	-	<10	106	<10	<10	<10	<10
Phenol	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
Pirimphos-ethyl	US EPA 3510/8270	ug/L	0.5	<2	14	<2	<2	<2	<2
Polycyclic Aromatic Hydrocarbons Total	US EPA 3510/8270	ug/L	-	<0.5	118	<0.5	<0.5	<0.5	<0.5
Potassium Dissolved	US EPA 200.7	mg/L	-	<0.1	48	0.4	1.9	0.8	1.8
Pronamide	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
Prothiofos	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
Pyrene	US EPA 8270/8260	ug/L	-	<10	106	<10	<10	<10	<10
Pyrene	US EPA 3510/8270	ug/L	-	<1	118	<1	<1	<1	<1
Pyrene	US EPA 3510/8270	ug/L	-	<2	14	<2	<2	<2	<2
Selenium Total	US EPA 200.8	ug/L	10	<2	120	<2	<2	<2	<2
Silver Total	US EPA 200.8	ug/L	100	<1	120	<1	<1	<1	<1
Sodium Dissolved	US EPA 200.7	mg/L	-	<0.1	48	2.6	7.6	3.7	7.4
Sulphate	APHA 21st Ed. 2005, Part 4110 B	mg/L	500	<0.4	48	0.6	35.0	7.5	33.7
Temperature	APHA 2550 B	deg. C	-	<0.1	480	8.5	28.0	17.1	24.3
Total Coliforms	APHA 9223 B	MPN/100mL	-	<1	1008	<1	1400	3	<1

Analyte	Method ID	Units	ADWG	Limit of Reporting	Number of Samples	Minimum	Maximum	Mean	95th Percentile
Total Dissolved Salts	APHA 2540 C	mg/L	-	<20	120	28	160	71	120
Tribromoacetic Acid	US EPA SW 846 Method 8260 B	ug/L	-	<10	239	<10	<10	<10	<10
Trichloroacetic Acid	US EPA SW 846 Method 8260 B	ug/L	100	<1	239	10	72	29	60
Trihalomethanes Total	HP 228-135	ug/L	250	<1	168	8	160	31	72
Trihalomethanes Total	US EPA 5030B/5035/8260B	mg/L	0.25	<0.001	72	0.016	0.060	0.029	0.041
True colour	Lachat QuikChem Method, Color in Waters 10-308-00-1-A	Pt.Co	-	<1	479	<1	3	1	2
Turbidity	APHA 2130 B	NTU	-	<0.1	480	0.11	2.7	0.34	0.63
Zinc Total	US EPA 200.8	ug/L	-	<5	120	<5	82	5.6	18

ADWG	Australian Drinking Water Guidelines – Health Guideline Value
CFU/mL	colony forming units per millilitre
Deg C	degrees Celsius
ug/L	micrograms per litre
mg/L	milligrams per litre
uS/cm	micro siemens per centimetre
MPN	most probable number
NTU	nephelometric units
Pt-Co	platinum-cobalt units

The 95th percentile is a statistical calculation based on 'normal' distribution. In the context of this report, it estimates the value for which 95% of all the water that passes through the distribution system in this 12 month period falls below.

Table 9.2 Summary data for water quality zone 1: North Canberra and Gungahlin

Analyte	Method ID	Units	ADWG	Limit of Reporting	Number of Samples	Minimum	Maximum	Mean	95th Percentile
1 Naphthylamine	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
1,2 Dichlorobenzene	US EPA 3510/8270	ug/L	1500	<2	3	<2	<2	<2	<2
1,2 Dichlorobenzene	US EPA 8270/8260	ug/L	1500	<20	21	<20	<20	<20	<20
1,2,4 Trichlorobenzene	US EPA 8270/8260	ug/L	30	<20	21	<20	<20	<20	<20
1,2,4 Trichlorobenzene	US EPA 3510/8270	ug/L	30	<2	3	<2	<2	<2	<2
1,3 Dichlorobenzene	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
1,3 Dichlorobenzene	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
1,3,5 Trinitrobenzene	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
1,4 Dichlorobenzene	US EPA 8270/8260	ug/L	40	<20	21	<20	<20	<20	<20
1,4 Dichlorobenzene	US EPA 3510/8270	ug/L	40	<2	3	<2	<2	<2	<2
2 Chloronaphthalene	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
2 Chloronaphthalene	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
2 Chlorophenol	US EPA 8270/8260	ug/L	300	<10	21	<10	<10	<10	<10
2 Chlorophenol	US EPA 3510/8270	ug/L	300	<2	3	<2	<2	<2	<2
2 Methylnaphthalene	US EPA 8270/8260	ug/L	-	<10	21	<10	<10	<10	<10
2 Methylnaphthalene	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
2 Methylphenol	US EPA 8270/8260	ug/L	-	<10	21	<10	<10	<10	<10
2 Methylphenol	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
2 Nitroaniline	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
2 Nitroaniline	US EPA 3510/8270	ug/L	-	<4	3	<4	<4	<4	<4
2 Nitrophenol	US EPA 8270/8260	ug/L	-	<10	21	<10	<20	<10	<10
2 Nitrophenol	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
2 Picoline	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
2,3,4,6 Tetrachlorophenol	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
2,3,4,6 Tetrachlorophenol	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
2,4 Dichlorophenol	US EPA 8270/8260	ug/L	200	<10	21	<10	<10	<10	<10
2,4 Dichlorophenol	US EPA 3510/8270	ug/L	200	<2	3	<2	<2	<2	<2
2,4 Dimethylphenol	US EPA 8270/8260	ug/L	-	<10	21	<10	<10	<10	<10
2,4 Dimethylphenol	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
2,4 Dinitrotoluene	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
2,4 Dinitrotoluene	US EPA 3510/8270	ug/L	-	<4	3	<4	<4	<4	<4
2,4,5 Trichlorophenol	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
2,4,5 Trichlorophenol	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
2,4,6 Trichlorophenol	US EPA 8270/8260	ug/L	20	<20	21	<20	<20	<20	<20
2,4,6 Trichlorophenol	US EPA 3510/8270	ug/L	20	<2	3	<2	<2	<2	<2
2,6 Dichlorophenol	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
2,6 Dichlorophenol	US EPA 8270/8260	ug/L	-	<10	21	<10	<10	<10	<10
2,6 Dinitrotoluene	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20

Analyte	Method ID	Units	ADWG	Limit of Reporting	Number of Samples	Minimum	Maximum	Mean	95th Percentile
2,6 Dinitrotoluene	US EPA 3510/8270	ug/L	-	<4	3	<4	<4	<4	<4
3 Methylcholanthrene	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
3 Nitroaniline	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
3 Nitroaniline	US EPA 3510/8270	ug/L	-	<4	3	<4	<4	<4	<4
3,3 Dichlorobenzidine	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
3,4 Methylphenol	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
3,4 Methylphenol	US EPA 3510/8270	ug/L	-	<4	3	<4	<4	<4	<4
4 Aminobiphenyl	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
4 Bromophenyl phenyl ether	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
4 Bromophenyl phenyl ether	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
4 Chloro 3 methylphenol	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
4 Chloro 3 methylphenol	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
4 Chloroaniline	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
4 Chloroaniline	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
4 Chlorophenyl phenyl ether	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
4 Chlorophenyl phenyl ether	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
4 Nitroaniline	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
4 Nitroaniline	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
4 Nitroquinoline N oxide	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
4,4 DDD	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
4,4 DDD	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
4,4 DDE	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
4,4 DDE	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
4,4 DDT	US EPA 3510/8270	ug/L	9	<4	3	<4	<4	<4	<4
4,4 DDT	US EPA 8270/8260	ug/L	9	<20	21	<20	<20	<20	<20
5 Nitro o toluidine	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
7,12 Dimethylbenz(a) anthracene	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
a BHC	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
Acenaphthene	US EPA 8270/8260	ug/L	-	<10	21	<10	<10	<10	<10
Acenaphthene	US EPA 3510/8270	ug/L	-	<1	24	<1	<1	<1	<1
Acenaphthene	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Acenaphthylene	US EPA 8270/8260	ug/L	-	<10	21	<10	<10	<10	<10
Acenaphthylene	US EPA 3510/8270	ug/L	-	<1	24	<1	<1	<1	<1
Acenaphthylene	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Acetophenone	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Aldrin	US EPA 8270/8260	ug/L	0.3	<20	21	<20	<20	<20	<20
Aldrin	US EPA 3510/8270	ug/L	0.3	<2	3	<2	<2	<2	<2
Alkalinity bicarb	APHA 2320 A/B	mg/L	-	<0.1	60	33.0	88.8	38.3	42.3
Alkalinity carb	APHA 2320 A/B	mg/L	-	<0.1	60	<0.1	<0.1	<0.1	<0.1

Analyte	Method ID	Units	ADWG	Limit of Reporting	Number of Samples	Minimum	Maximum	Mean	95th Percentile
Alkalinity hydrox	APHA 2320 A/B	mg/L	-	<0.1	60	<0.1	<0.1	<0.1	<0.1
Alkalinity total	APHA 2320 A/B	mg/L	-	<1	60	33	89	38	42
alpha BHC	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
alpha Endosulfan	US EPA 3510/8270	ug/L	20	<2	3	<2	<2	<2	<2
Aluminium Acid Soluble	US EPA 200.8	ug/L	-	<5	24	18	54	29	40
Aluminium Total	US EPA 200.7	mg/L	-	<0.02	6	0.03	0.05	0.04	0.05
Aluminium Total	US EPA 200.8	ug/L	-	<9	24	24	190	43	75
Aniline	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
Aniline	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Anthracene	US EPA 8270/8260	ug/L	-	<10	21	<10	<10	<10	<10
Anthracene	US EPA 3510/8270	ug/L	-	<1	24	<1	<1	<1	<1
Anthracene	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Antimony Total Screen	US EPA 200.8	ug/L	3	<3	24	<3	<3	<3	<3
Arsenic Total	US EPA 200.8	ug/L	10	<1	24	<1	<1	<1	<1
Asbestos	AS 4964-2000	Present/ Absent	-	Absent	24	Absent	Absent	-	-
Azobenzene	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
Azobenzene	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
b BHC	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
Barium Total	US EPA 200.8	ug/L	2000	<1	24	3	11	5	9
Benz(a)anthracene	US EPA 8270/8260	ug/L	-	<10	21	<10	<10	<10	<10
Benz(a)anthracene	US EPA 3510/8270	ug/L	-	<1	24	<1	<1	<1	<1
Benz(a)anthracene	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Benzo (b,k) fluoranthene	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
Benzo(a)pyrene	US EPA 8270/8260	ug/L	0.01	<10	21	<10	<10	<10	<10
Benzo(a)pyrene	US EPA 3510/8270	ug/L	0.01	<0.5	24	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	US EPA 3510/8270	ug/L	0.01	<2	3	<2	<2	<2	<2
Benzo(b) & Benzo(k) fluoranthene	US EPA 3510/8270	ug/L	-	<4	3	<4	<4	<4	<4
Benzo(b)fluoranthene	US EPA 3510/8270	ug/L	-	<1	24	<1	<1	<1	<1
Benzo(g,h,i)perylene	US EPA 8270/8260	ug/L	-	<10	21	<10	<10	<10	<10
Benzo(g,h,i)perylene	US EPA 3510/8270	ug/L	-	<1	24	<1	<1	<1	<1
Benzo(g,h,i)perylene	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Benzo(k)fluoranthene	US EPA 3510/8270	ug/L	-	<1	24	<1	<1	<1	<1
Benzyl alcohol	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
Beryllium Total	US EPA 200.8	ug/L	60	<0.1	24	<0.1	<0.1	<0.1	<0.1
beta BHC	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
beta Endosulfan	US EPA 3510/8270	ug/L	20	<2	3	<2	<2	<2	<2
Bis(2-chloroisopropyl) ether	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
Bis(2-chloroethoxy) methane	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20

Analyte	Method ID	Units	ADWG	Limit of Reporting	Number of Samples	Minimum	Maximum	Mean	95th Percentile
Bis(2-chloroethoxy) methane	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Bis(2-chloroethyl) ether	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
Bis(2-chloroethyl) ether	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Bis(2-ethylhexyl) phthalate	US EPA 8270/8260	ug/L	10	<20	21	<20	<20	<20	<20
Bis(2-ethylhexyl) phthalate	US EPA 3510/8270	ug/L	10	<5	3	<5	12	<5	11
Boron Total	US EPA 200.7	mg/L	4	<0.01	10	<0.01	<0.01	<0.01	<0.01
Bromoacetic Acid	US EPA SW 846 Method 8260 B	ug/L	-	<5	60	<5	<5	<5	<5
Bromochloroacetic Acid	US EPA SW 846 Method 8260 B	ug/L	-	<1	60	<1	5	2	5
Bromodichloroacetic Acid	US EPA SW 846 Method 8260 B	ug/L	-	<1	60	<1	7	2	7
Bromoform	US EPA 5030B/5035/8260B	mg/L	-	<0.001	18	<0.001	<0.001	<0.001	<0.001
Bromoform	HP 228-135	ug/L	-	<1	42	<1	<1	<1	<1
Butyl benzyl phthalate	US EPA 8270/8260	ug/L	-	<10	21	<10	<20	<10	<10
Butyl benzyl phthalate	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Cadmium Total	US EPA 200.8	ug/L	2	<0.05	24	<0.05	<0.05	<0.05	<0.05
Calcium Dissolved	US EPA 200.7	mg/L	-	<0.05	24	11.00	19.00	13.67	19.00
Carbazole	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
Carbazole	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Chlorfenvinphos	US EPA 3510/8270	ug/L	2	<2	3	<2	<2	<2	<2
Chloride	APHA 21st Ed. 2005, Part 4110 B	mg/L	-	<0.1	12	<0.1	7.4	3.6	7.1
Chlorine Combined	APHA 4500-CL G	mg/L	-	<0.03	252	<0.03	1.80	0.09	0.23
Chlorine Free	APHA 4500-CL G	mg/L	-	<0.03	252	0.03	6.20	0.82	1.16
Chlorine Total	APHA 4500-CL G	mg/L	5	<0.03	252	0.22	8.00	0.91	1.26
Chlorobenzilate	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Chloroform	US EPA 5030B/5035/8260B	mg/L	-	<0.001	18	0.017	0.033	0.026	0.032
Chloroform	HP 228-135	ug/L	-	<1	42	11	67	27	61
Chlorpyrifos	US EPA 8270/8260	ug/L	10	<20	21	<20	<20	<20	<20
Chlorpyrifos	US EPA 3510/8270	ug/L	10	<2	3	<2	<2	<2	<2
Chlorpyrifos-methyl	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Chromium Total	US EPA 200.8	ug/L	50	<2	24	<2	<2	<2	<2
Chrysene	US EPA 8270/8260	ug/L	-	<10	21	<10	<10	<10	<10
Chrysene	US EPA 3510/8270	ug/L	-	<1	24	<1	<1	<1	<1
Chrysene	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Cobalt Total	US EPA 200.8	ug/L	-	<0.2	24	<0.2	0.3	<0.2	<0.2
Conductivity	APHA 2510 B	uS/cm	-	<2	28	87	190	119	190
Copper Total	US EPA 200.8	ug/L	2000	<1	24	<1	60	18	42
Copper Total	US EPA 200.7	ug/L	2000	<1	96	<1	120	22	65

Analyte	Method ID	Units	ADWG	Limit of Reporting	Number of Samples	Minimum	Maximum	Mean	95th Percentile
Cyanide	APHA 4500_CN	mg/L	0.08	<0.004	10	<0.004	<0.004	<0.004	<0.004
d BHC	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
delta-BHC	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Diazinon	US EPA 8270/8260	ug/L	4	<20	21	<20	<20	<20	<20
Diazinon	US EPA 3510/8270	ug/L	4	<2	3	<2	<2	<2	<2
Dibenz(a,h)anthracene	US EPA 8270/8260	ug/L	-	<10	21	<10	<10	<10	<10
Dibenz(a,h)anthracene	US EPA 3510/8270	ug/L	-	<1	24	<1	<1	<1	<1
Dibenz(a,h)anthracene	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Dibenzofuran	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
Dibenzofuran	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Dibromoacetic Acid	US EPA SW 846 Method 8260 B	ug/L	-	<1	60	<1	2	<1	<1
Dibromochloroacetic Acid	US EPA SW 846 Method 8260 B	ug/L	-	<10	60	<10	<10	<10	<10
Dibromochloromethane	US EPA 5030B/5035/8260B	mg/L	-	<0.001	18	<0.001	<0.001	<0.001	<0.001
Dibromochloromethane	HP 228-135	ug/L	-	<1	42	<1	<1	<1	<1
Dichloroacetic Acid	US EPA SW 846 Method 8260 B	ug/L	100	<10	60	<10	47	20	41
Dichlorobenzidine	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
Dichlorobromomethane	US EPA 5030B/5035/8260B	mg/L	-	<0.001	18	<0.001	0.002	0.002	0.002
Dichlorobromomethane	HP 228-135	ug/L	-	<1	42	<1	9	3	8
Dieldrin	US EPA 8270/8260	ug/L	0.3	<20	21	<20	<20	<20	<20
Dieldrin	US EPA 3510/8270	ug/L	0.3	<2	3	<2	<2	<2	<2
Diethyl phthalate	US EPA 8270/8260	ug/L	-	<10	21	<10	<10	<10	<10
Diethyl phthalate	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Dimethoate	US EPA 8270/8260	ug/L	7	<20	21	<20	<20	<20	<20
Dimethoate	US EPA 3510/8270	ug/L	7	<2	3	<2	<2	<2	<2
Dimethyl phthalate	US EPA 8270/8260	ug/L	-	<10	21	<10	<10	<10	<10
Dimethyl phthalate	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Dimethylaminoazobenzene	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Di-n-butyl phthalate	US EPA 8270/8260	ug/L	-	<10	21	<10	<10	<10	<10
Di-n-butyl phthalate	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Di-n-octyl phthalate	US EPA 8270/8260	ug/L	-	<10	21	<10	<10	<10	<10
Di-n-octyl phthalate	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
E.Coli	APHA 9223 B	MPN/100mL	<1	<1	252	<1	1	<1	<1
Endosulfan sulfate	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Endosulfan sulphate	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
Endosulphan 1	US EPA 8270/8260	ug/L	20	<20	21	<20	<20	<20	<20
Endosulphan 11	US EPA 8270/8260	ug/L	20	<20	21	<20	<20	<20	<20

Analyte	Method ID	Units	ADWG	Limit of Reporting	Number of Samples	Minimum	Maximum	Mean	95th Percentile
Endrin	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
Endrin	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Endrin Aldehyde	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
Ethion	US EPA 8270/8260	ug/L	4	<20	21	<20	<20	<20	<20
Ethion	US EPA 3510/8270	ug/L	4	<2	3	<2	<2	<2	<2
Fenitrothion	US EPA 8270/8260	ug/L	7	<20	21	<20	<20	<20	<20
Fenthion	US EPA 3510/8270	ug/L	7	<2	3	<2	<2	<2	<2
Fluoranthene	US EPA 8270/8260	ug/L	-	<10	21	<10	<10	<10	<10
Fluoranthene	US EPA 3510/8270	ug/L	-	<1	24	<1	<1	<1	<1
Fluoranthene	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Fluorene	US EPA 8270/8260	ug/L	-	<10	21	<10	<20	<10	<10
Fluorene	US EPA 3510/8270	ug/L	-	<1	24	<1	<1	<1	<1
Fluorene	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Fluoride	APHA 4500-FC	mg/L	1.5	<0.1	24	0.7	0.9	0.8	0.9
g BHC (Lindane)	US EPA 8270/8260	ug/L	10	<20	21	<20	<20	<20	<20
gamma-BHC	US EPA 3510/8270	ug/L	10	<2	3	<2	<2	<2	<2
Hardness Total	APHA 2340 B	mg/L	-	<0.1	22	32.0	63.0	39.9	62.0
Heptachlor	US EPA 8270/8260	ug/L	0.3	<20	21	<20	<20	<20	<20
Heptachlor	US EPA 3510/8270	ug/L	0.3	<2	3	<2	<2	<2	<2
Heptachlorepoxide	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Heptachlorepoxide	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
Heterotrophic Plate Count	APHA 9215 B	CFU/mL	-	<1	252	<1	73	2	7
Hexachloro 1,3 butadiene	US EPA 8270/8260	ug/L	0.7	<20	21	<20	<20	<20	<20
Hexachlorobutadiene	US EPA 3510/8270	ug/L	0.7	<2	3	<2	<2	<2	<2
Hexachlorobenzene	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
Hexachlorobenzene	US EPA 3510/8270	ug/L	-	<4	3	<4	<4	<4	<4
Hexachlorocyclopentadiene	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
Hexachlorocyclopentadiene	US EPA 3510/8270	ug/L	-	<10	3	<10	<10	<10	<10
Hexachloroethane	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
Hexachloroethane	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Hexachloropropylene	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Indeno(1,2,3,cd)pyrene	US EPA 8270/8260	ug/L	-	<10	21	<10	<10	<10	<10
Indeno(1,2,3,cd)pyrene	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Indeno(1,2,3,cd)pyrene	US EPA 3510/8270	ug/L	-	<1	24	<1	<1	<1	<1
Iodide	ASTM D19	mg/L	0.5	<0.05	12	<0.05	<0.05	<0.05	<0.05
Iron Total	US EPA 200.7	mg/L	-	<0.02	60	<0.02	0.05	<0.02	<0.02
Isophorone	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
Isophorone	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Lead Total	US EPA 200.8	ug/L	10	<0.2	36	<0.2	1.5	0.3	0.8
Lead Total	US EPA 200.8	ug/L	10	<0.2	24	<0.2	1.7	0.3	0.7
Magnesium Dissolved	US EPA 200.7	mg/L	-	<0.05	24	0.69	3.80	1.28	3.40

Analyte	Method ID	Units	ADWG	Limit of Reporting	Number of Samples	Minimum	Maximum	Mean	95th Percentile
Malathion	US EPA 8270/8260	ug/L	70	<20	21	<20	<20	<20	<20
Malathion	US EPA 3510/8270	ug/L	70	<2	3	<2	<2	<2	<2
Manganese Total	US EPA 200.8	mg/L	0.5	<0.001	120	0.001	0.047	0.004	0.010
Manganese Total	US EPA 200.8	ug/L	500	<0.5	24	<0.5	53.0	5.0	9.1
Mercury Total	USEPA 200.8	ug/L	1	<0.1	10	<0.1	<0.1	<0.1	<0.1
Methapyrilene	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Molybdenium Total	US EPA 200.8	ug/L	50	<1	24	<1	2	<1	<1
Monochloroacetic Acid	US EPA SW 846 Method 8260 B	ug/L	-	<1	60	<1	4	1	3
N-2-Fluorenyl Acetamide	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Naphthalene	US EPA 8270/8260	ug/L	-	<10	21	<10	<10	<10	<10
Naphthalene	US EPA 3510/8270	ug/L	-	<1	24	<1	<1	<1	<1
Naphthalene	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Nickel Total	US EPA 200.8	ug/L	20	<1	24	<1	2	<1	1
Nitrate	APHA 21st Ed. 2005, Part 4110 B	mg/L	50	<0.1	12	<0.1	0.2	<0.1	0.2
Nitrobenzene	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
Nitrobenzene	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
N-Nitrosodibutylamine	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
N-Nitrosodiethylamine	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
N-Nitrosodimethylamine	US EPA 8270/8260	ug/L	0.1	<20	21	<20	<20	<20	<20
N-Nitrosodi-n-propylamine	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
N-Nitrosodi-n-propylamine	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
N-Nitrosodiphenyl & Diphenylamine	US EPA 3510/8270	ug/L	-	<4	3	<4	<4	<4	<4
N-Nitrosodiphenylamine	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
N-Nitrosomethylethylamine	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
N-Nitrosomorpholine	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
N-Nitrosopiperidine	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
N-Nitrosopyrrolidine	US EPA 3510/8270	ug/L	-	<4	3	<4	<4	<4	<4
Pentachlorobenzene	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Pentachloronitrobenzene	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Pentachlorophenol	US EPA 8270/8260	ug/L	10	<20	21	<20	<20	<20	<20
Pentachlorophenol	US EPA 3510/8270	ug/L	10	<4	3	<4	<4	<4	<4
pH	APHA 4500-H B	pH	-	<0.1	252	6.6	8.2	7.6	7.9
Phenacetin	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Phenanthrene	US EPA 8270/8260	ug/L	-	<10	21	<10	<10	<10	<10
Phenanthrene	US EPA 3510/8270	ug/L	-	<1	24	<1	<1	<1	<1
Phenanthrene	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Phenol	US EPA 8270/8260	ug/L	-	<10	21	<10	<10	<10	<10
Phenol	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2

Analyte	Method ID	Units	ADWG	Limit of Reporting	Number of Samples	Minimum	Maximum	Mean	95th Percentile
Pirimphos-ethyl	US EPA 3510/8270	ug/L	0.5	<2	3	<2	<2	<2	<2
Polycyclic Aromatic Hydrocarbons Total	US EPA 3510/8270	ug/L	-	<0.5	24	<0.5	<0.5	<0.5	<0.5
Potassium Dissolved	US EPA 200.7	mg/L	-	<0.1	12	0.4	1.8	0.7	1.7
Pronamide	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Prothiofos	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Pyrene	US EPA 8270/8260	ug/L	-	<10	21	<10	<10	<10	<10
Pyrene	US EPA 3510/8270	ug/L	-	<1	24	<1	<1	<1	<1
Pyrene	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Selenium Total	US EPA 200.8	ug/L	10	<2	24	<2	<2	<2	<2
Silver Total	US EPA 200.8	ug/L	100	<1	24	<1	<1	<1	<1
Sodium Dissolved	US EPA 200.7	mg/L	-	<0.1	12	2.7	7.3	3.6	7.2
Sulphate	APHA 21st Ed. 2005, Part 4110 B	mg/L	500	<0.4	12	<0.4	33.0	6.2	33.0
Temperature	APHA 2550 B	deg. C	-	<0.1	120	9.5	28.0	17.0	24.0
Total Coliforms	APHA 9223 B	MPN/100mL	-	<1	252	<1	1100	5	<1
Total Dissolved Salts	APHA 2540 C	mg/L	-	<20	24	44	120	70	120
Tribromoacetic Acid	US EPA SW 846 Method 8260 B	ug/L	-	<10	60	<10	<10	<10	<10
Trichloroacetic Acid	US EPA SW 846 Method 8260 B	ug/L	100	<1	60	10	68	28	58
Trihalomethanes Total	HP 228-135	ug/L	250	<1	42	11	75	29	68
Trihalomethanes Total	US EPA 5030B/5035/8260B	mg/L	0.25	<0.001	18	0.018	0.035	0.027	0.034
True colour	Lachat QuikChem Method, Color in Waters 10-308-00-1-A	Pt.Co	-	<1	119	<1	3	1	2
Turbidity	APHA 2130 B	NTU	-	<0.1	120	0.1	0.9	0.3	0.7
Zinc Total	US EPA 200.8	ug/L	-	<5	24	<5	82	7	15

ADWG	Australian Drinking Water Guidelines – Health Guideline Value
CFU/mL	colony forming units per millilitre
Deg C	degrees Celsius
ug/L	micrograms per litre
mg/L	milligrams per litre
uS/cm	micro siemens per centimetre
MPN	most probable number
NTU	nephelometric units
Pt-Co	platinum-cobalt units

The 95th percentile is a statistical calculation based on 'normal' distribution. In the context of this report, it estimates the value for which 95% of all the water that passes through the distribution system in this 12 month period falls below.

Table 9.3 Summary data for water quality zone 2: Belconnen

Analyte	Method ID	Units	ADWG	Limit of Reporting	Number of Samples	Minimum	Maximum	Mean	95th Percentile
1 Naphthylamine	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
1,2 Dichlorobenzene	US EPA 3510/8270	ug/L	1500	<2	4	<2	<2	<2	<2
1,2 Dichlorobenzene	US EPA 8270/8260	ug/L	1500	<20	32	<20	<20	<20	<20
1,2,4 Trichlorobenzene	US EPA 8270/8260	ug/L	30	<20	32	<20	<20	<20	<20
1,2,4 Trichlorobenzene	US EPA 3510/8270	ug/L	30	<2	4	<2	<2	<2	<2
1,3 Dichlorobenzene	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
1,3 Dichlorobenzene	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
1,3,5 Trinitrobenzene	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
1,4 Dichlorobenzene	US EPA 8270/8260	ug/L	40	<20	32	<20	<20	<20	<20
1,4 Dichlorobenzene	US EPA 3510/8270	ug/L	40	<2	4	<2	<2	<2	<2
2 Chloronaphthalene	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
2 Chloronaphthalene	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
2 Chlorophenol	US EPA 8270/8260	ug/L	300	<10	32	<10	<10	<10	<10
2 Chlorophenol	US EPA 3510/8270	ug/L	300	<2	4	<2	<2	<2	<2
2 Methylnaphthalene	US EPA 8270/8260	ug/L	-	<10	32	<10	<10	<10	<10
2 Methylnaphthalene	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
2 Methylphenol	US EPA 8270/8260	ug/L	-	<10	32	<10	<10	<10	<10
2 Methylphenol	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
2 Nitroaniline	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
2 Nitroaniline	US EPA 3510/8270	ug/L	-	<4	4	<4	<4	<4	<4
2 Nitrophenol	US EPA 8270/8260	ug/L	-	<10	32	<10	<20	<10	<10
2 Nitrophenol	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
2 Picoline	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
2,3,4,6 Tetrachlorophenol	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
2,3,4,6 Tetrachlorophenol	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
2,4 Dichlorophenol	US EPA 8270/8260	ug/L	200	<10	32	<10	<10	<10	<10
2,4 Dichlorophenol	US EPA 3510/8270	ug/L	200	<2	4	<2	<2	<2	<2
2,4 Dimethylphenol	US EPA 8270/8260	ug/L	-	<10	32	<10	<10	<10	<10
2,4 Dimethylphenol	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
2,4 Dinitrotoluene	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
2,4 Dinitrotoluene	US EPA 3510/8270	ug/L	-	<4	4	<4	<4	<4	<4
2,4,5 Trichlorophenol	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
2,4,5 Trichlorophenol	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
2,4,6 Trichlorophenol	US EPA 8270/8260	ug/L	20	<20	32	<20	<20	<20	<20
2,4,6 Trichlorophenol	US EPA 3510/8270	ug/L	20	<2	4	<2	<2	<2	<2
2,6 Dichlorophenol	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
2,6 Dichlorophenol	US EPA 8270/8260	ug/L	-	<10	32	<10	<10	<10	<10
2,6 Dinitrotoluene	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
2,6 Dinitrotoluene	US EPA 3510/8270	ug/L	-	<4	4	<4	<4	<4	<4

Analyte	Method ID	Units	ADWG	Limit of Reporting	Number of Samples	Minimum	Maximum	Mean	95th Percentile
3 Methylcholanthrene	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
3 Nitroaniline	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
3 Nitroaniline	US EPA 3510/8270	ug/L	-	<4	4	<4	<4	<4	<4
3,3 Dichlorobenzidine	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
3,4 Methylphenol	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
3,4 Methylphenol	US EPA 3510/8270	ug/L	-	<4	4	<4	<4	<4	<4
4 Aminobiphenyl	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
4 Bromophenyl phenyl ether	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
4 Bromophenyl phenyl ether	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
4 Chloro 3 methylphenol	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
4 Chloro 3 methylphenol	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
4 Chloroaniline	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
4 Chloroaniline	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
4 Chlorophenyl phenyl ether	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
4 Chlorophenyl phenyl ether	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
4 Nitroaniline	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
4 Nitroaniline	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
4 Nitroquinoline N oxide	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
4,4 DDD	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
4,4 DDD	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
4,4 DDE	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
4,4 DDE	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
4,4 DDT	US EPA 3510/8270	ug/L	9	<4	4	<4	<4	<4	<4
4,4 DDT	US EPA 8270/8260	ug/L	9	<20	32	<20	<20	<20	<20
5 Nitro o toluidine	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
7,12 Dimethylbenz(a) anthracene	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
a BHC	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
Acenaphthene	US EPA 8270/8260	ug/L	-	<10	32	<10	<10	<10	<10
Acenaphthene	US EPA 3510/8270	ug/L	-	<1	36	<1	<1	<1	<1
Acenaphthene	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Acenaphthylene	US EPA 8270/8260	ug/L	-	<10	32	<10	<10	<10	<10
Acenaphthylene	US EPA 3510/8270	ug/L	-	<1	36	<1	<1	<1	<1
Acenaphthylene	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Acetophenone	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Aldrin	US EPA 8270/8260	ug/L	0.3	<20	32	<20	<20	<20	<20
Aldrin	US EPA 3510/8270	ug/L	0.3	<2	4	<2	<2	<2	<2
Alkalinity bicarb	APHA 2320 A/B	mg/L	-	<0.1	60	32.9	43.2	37.1	41.4
Alkalinity carb	APHA 2320 A/B	mg/L	-	<0.1	60	<0.1	7.8	0.2	<0.1
Alkalinity hydrox	APHA 2320 A/B	mg/L	-	<0.1	60	<0.1	<0.1	<0.1	<0.1
Alkalinity total	APHA 2320 A/B	mg/L	-	<1	60	33	49	37	42

Analyte	Method ID	Units	ADWG	Limit of Reporting	Number of Samples	Minimum	Maximum	Mean	95th Percentile
alpha BHC	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
alpha Endosulfan	US EPA 3510/8270	ug/L	20	<2	4	<2	<2	<2	<2
Aluminium Acid Soluble	US EPA 200.8	ug/L	-	<5	36	23	63	36	49
Aluminium Total	US EPA 200.7	mg/L	-	<0.02	9	0.04	0.05	0.04	0.05
Aluminium Total	US EPA 200.8	ug/L	-	<9	36	27	70	43	64
Aniline	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
Aniline	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Anthracene	US EPA 8270/8260	ug/L	-	<10	32	<10	<10	<10	<10
Anthracene	US EPA 3510/8270	ug/L	-	<1	36	<1	<1	<1	<1
Anthracene	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Antimony Total Screen	US EPA 200.8	ug/L	3	<3	36	<3	<3	<3	<3
Arsenic Total	US EPA 200.8	ug/L	10	<1	36	<1	<1	<1	<1
Asbestos	AS 4964-2000	Present/ Absent	-	Absent	36	Absent	Absent	-	-
Azobenzene	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
Azobenzene	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
b BHC	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
Barium Total	US EPA 200.8	ug/L	2000	<1	36	2	7	4	7
Benz(a)anthracene	US EPA 8270/8260	ug/L	-	<10	32	<10	<10	<10	<10
Benz(a)anthracene	US EPA 3510/8270	ug/L	-	<1	36	<1	<1	<1	<1
Benz(a)anthracene	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Benzo (b,k) fluoranthene	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
Benzo(a)pyrene	US EPA 8270/8260	ug/L	0.01	<10	32	<10	<10	<10	<10
Benzo(a)pyrene	US EPA 3510/8270	ug/L	0.01	<0.5	36	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	US EPA 3510/8270	ug/L	0.01	<2	4	<2	<2	<2	<2
Benzo(b) & Benzo(k) fluoranthene	US EPA 3510/8270	ug/L	-	<4	4	<4	<4	<4	<4
Benzo(b)fluoranthene	US EPA 3510/8270	ug/L	-	<1	36	<1	<1	<1	<1
Benzo(g,h,i)perylene	US EPA 8270/8260	ug/L	-	<10	32	<10	<10	<10	<10
Benzo(g,h,i)perylene	US EPA 3510/8270	ug/L	-	<1	36	<1	<1	<1	<1
Benzo(g,h,i)perylene	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Benzo(k)fluoranthene	US EPA 3510/8270	ug/L	-	<1	36	<1	<1	<1	<1
Benzyl alcohol	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
Beryllium Total	US EPA 200.8	ug/L	60	<0.1	36	<0.1	<0.1	<0.1	<0.1
beta BHC	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
beta Endosulfan	US EPA 3510/8270	ug/L	20	<2	4	<2	<2	<2	<2
Bis(2-chloroisopropyl) ether	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
Bis(2-chloroethoxy) methane	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
Bis(2-chloroethoxy) methane	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Bis(2-chloroethyl) ether	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
Bis(2-chloroethyl) ether	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2

Analyte	Method ID	Units	ADWG	Limit of Reporting	Number of Samples	Minimum	Maximum	Mean	95th Percentile
Bis(2-ethylhexyl) phthalate	US EPA 8270/8260	ug/L	10	<20	32	<20	<20	<20	<20
Bis(2-ethylhexyl) phthalate	US EPA 3510/8270	ug/L	10	<5	4	<5	<5	<5	<5
Boron Total	US EPA 200.7	mg/L	4	<0.01	10	<0.01	<0.01	<0.01	<0.01
Bromoacetic Acid	US EPA SW 846 Method 8260 B	ug/L	-	<5	59	<5	<5	<5	<5
Bromochloroacetic Acid	US EPA SW 846 Method 8260 B	ug/L	-	<1	59	<1	6	2	5
Bromodichloroacetic Acid	US EPA SW 846 Method 8260 B	ug/L	-	<1	59	<1	10	3	8
Bromoform	US EPA 5030B/5035/8260B	mg/L	-	<0.001	18	<0.001	<0.001	<0.001	<0.001
Bromoform	HP 228-135	ug/L	-	<1	42	<1	<1	<1	<1
Butyl benzyl phthalate	US EPA 8270/8260	ug/L	-	<10	32	<10	<20	<10	<10
Butyl benzyl phthalate	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Cadmium Total	US EPA 200.8	ug/L	2	<0.05	36	<0.05	<0.05	<0.05	<0.05
Calcium Dissolved	US EPA 200.7	mg/L	-	<0.05	36	11.00	19.00	13.94	19.00
Carbazole	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
Carbazole	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Chlorfenvinphos	US EPA 3510/8270	ug/L	2	<2	4	<2	<2	<2	<2
Chloride	APHA 21st Ed. 2005, Part 4110 B	mg/L	-	<0.1	12	<0.1	7.4	4.2	7.3
Chlorine Combined	APHA 4500-CL G	mg/L	-	<0.03	252	<0.03	0.46	0.10	0.29
Chlorine Free	APHA 4500-CL G	mg/L	-	<0.03	252	0.07	1.18	0.67	0.97
Chlorine Total	APHA 4500-CL G	mg/L	5	<0.03	252	0.24	1.26	0.77	1.07
Chlorobenzilate	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Chloroform	US EPA 5030B/5035/8260B	mg/L	-	<0.001	18	0.016	0.039	0.028	0.038
Chloroform	HP 228-135	ug/L	-	<1	42	8	68	28	61
Chlorpyrifos	US EPA 8270/8260	ug/L	10	<20	32	<20	<20	<20	<20
Chlorpyrifos	US EPA 3510/8270	ug/L	10	<2	4	<2	<2	<2	<2
Chlorpyrifos-methyl	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Chromium Total	US EPA 200.8	ug/L	50	<2	36	<2	<2	<2	<2
Chrysene	US EPA 8270/8260	ug/L	-	<10	32	<10	<10	<10	<10
Chrysene	US EPA 3510/8270	ug/L	-	<1	36	<1	<1	<1	<1
Chrysene	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Cobalt Total	US EPA 200.8	ug/L	-	<0.2	36	<0.2	<0.2	<0.2	<0.2
Conductivity	APHA 2510 B	uS/cm	-	<2	36	84	190	112	180
Copper Total	US EPA 200.8	ug/L	2000	<1	36	<1	77	15	37
Copper Total	US EPA 200.7	ug/L	2000	<1	84	<1	91	19	44
Cyanide	APHA 4500_CN	mg/L	0.08	<0.004	10	<0.004	<0.004	<0.004	<0.004
d BHC	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
delta-BHC	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2

Analyte	Method ID	Units	ADWG	Limit of Reporting	Number of Samples	Minimum	Maximum	Mean	95th Percentile
Diazinon	US EPA 8270/8260	ug/L	4	<20	32	<20	<20	<20	<20
Diazinon	US EPA 3510/8270	ug/L	4	<2	4	<2	<2	<2	<2
Dibenz(a,h)anthracene	US EPA 8270/8260	ug/L	-	<10	32	<10	<10	<10	<10
Dibenz(a,h)anthracene	US EPA 3510/8270	ug/L	-	<1	36	<1	<1	<1	<1
Dibenz(a,h)anthracene	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Dibenzofuran	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
Dibenzofuran	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Dibromoacetic Acid	US EPA SW 846 Method 8260 B	ug/L	-	<1	59	<1	<1	<1	<1
Dibromochloroacetic Acid	US EPA SW 846 Method 8260 B	ug/L	-	<10	59	<10	<10	<10	<10
Dibromochloromethane	US EPA 5030B/5035/8260B	mg/L	-	<0.001	18	<0.001	<0.001	<0.001	<0.001
Dibromochloromethane	HP 228-135	ug/L	-	<1	42	<1	<1	<1	<1
Dichloroacetic Acid	US EPA SW 846 Method 8260 B	ug/L	100	<10	59	<10	56	21	45
Dichlorobenzidine	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
Dichlorobromomethane	US EPA 5030B/5035/8260B	mg/L	-	<0.001	18	<0.001	0.002	0.002	0.002
Dichlorobromomethane	HP 228-135	ug/L	-	<1	42	<1	9	3	7
Dieldrin	US EPA 8270/8260	ug/L	0.3	<20	32	<20	<20	<20	<20
Dieldrin	US EPA 3510/8270	ug/L	0.3	<2	4	<2	<2	<2	<2
Diethyl phthalate	US EPA 8270/8260	ug/L	-	<10	32	<10	<10	<10	<10
Diethyl phthalate	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Dimethoate	US EPA 8270/8260	ug/L	7	<20	32	<20	<20	<20	<20
Dimethoate	US EPA 3510/8270	ug/L	7	<2	4	<2	<2	<2	<2
Dimethyl phthalate	US EPA 8270/8260	ug/L	-	<10	32	<10	<10	<10	<10
Dimethyl phthalate	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Dimethylaminoazobenzene	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Di-n-butyl phthalate	US EPA 8270/8260	ug/L	-	<10	32	<10	<10	<10	<10
Di-n-butyl phthalate	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Di-n-octyl phthalate	US EPA 8270/8260	ug/L	-	<10	32	<10	<10	<10	<10
Di-n-octyl phthalate	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
E.Coli	APHA 9223 B	MPN/100mL	<1	<1	252	<1	<1	<1	<1
Endosulfan sulfate	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Endosulfan sulphate	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
Endosulphan 1	US EPA 8270/8260	ug/L	20	<20	32	<20	<20	<20	<20
Endosulphan 11	US EPA 8270/8260	ug/L	20	<20	32	<20	<20	<20	<20
Endrin	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
Endrin	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Endrin Aldehyde	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
Ethion	US EPA 8270/8260	ug/L	4	<20	32	<20	<20	<20	<20

Analyte	Method ID	Units	ADWG	Limit of Reporting	Number of Samples	Minimum	Maximum	Mean	95th Percentile
Ethion	US EPA 3510/8270	ug/L	4	<2	4	<2	<2	<2	<2
Fenitrothion	US EPA 8270/8260	ug/L	7	<20	32	<20	<20	<20	<20
Fenthion	US EPA 3510/8270	ug/L	7	<2	4	<2	<2	<2	<2
Fluoranthene	US EPA 8270/8260	ug/L	-	<10	32	<10	<10	<10	<10
Fluoranthene	US EPA 3510/8270	ug/L	-	<1	36	<1	<1	<1	<1
Fluoranthene	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Fluorene	US EPA 8270/8260	ug/L	-	<10	32	<10	<20	<10	<10
Fluorene	US EPA 3510/8270	ug/L	-	<1	36	<1	<1	<1	<1
Fluorene	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Fluoride	APHA 4500-FC	mg/L	1.5	<0.1	36	0.6	0.9	0.8	0.9
g BHC (Lindane)	US EPA 8270/8260	ug/L	10	<20	32	<20	<20	<20	<20
gamma-BHC	US EPA 3510/8270	ug/L	10	<2	4	<2	<2	<2	<2
Hardness Total	APHA 2340 B	mg/L	-	<0.1	36	31.0	63.0	40.7	62.3
Heptachlor	US EPA 8270/8260	ug/L	0.3	<20	32	<20	<20	<20	<20
Heptachlor	US EPA 3510/8270	ug/L	0.3	<2	4	<2	<2	<2	<2
Heptachlorepoxide	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Heptachlorepoxide	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
Heterotrophic Plate Count	APHA 9215 B	CFU/mL	-	<1	252	<1	22	1	3
Hexachloro 1,3 butadiene	US EPA 8270/8260	ug/L	0.7	<20	32	<20	<20	<20	<20
Hexachlorobutadiene	US EPA 3510/8270	ug/L	0.7	<2	4	<2	<2	<2	<2
Hexachlorobenzene	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
Hexachlorobenzene	US EPA 3510/8270	ug/L	-	<4	4	<4	<4	<4	<4
Hexachlorocyclopentadiene	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
Hexachlorocyclopentadiene	US EPA 3510/8270	ug/L	-	<10	4	<10	<10	<10	<10
Hexachloroethane	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
Hexachloroethane	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Hexachloropropylene	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Indeno(1,2,3,cd)pyrene	US EPA 8270/8260	ug/L	-	<10	32	<10	<10	<10	<10
Indeno(1,2,3,cd)pyrene	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Indeno(1,2,3,cd)pyrene	US EPA 3510/8270	ug/L	-	<1	36	<1	<1	<1	<1
Iodide	ASTM D19	mg/L	0.5	<0.05	12	<0.05	<0.05	<0.05	<0.05
Iron Total	US EPA 200.7	mg/L	-	<0.02	60	<0.02	<0.02	<0.02	<0.02
Isophorone	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
Isophorone	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Lead Total	US EPA 200.8	ug/L	10	<0.2	24	<0.2	0.4	0.2	0.3
Lead Total	US EPA 200.8	ug/L	10	<0.2	36	<0.2	1.4	0.3	0.9
Magnesium Dissolved	US EPA 200.7	mg/L	-	<0.05	36	0.7	3.8	1.5	3.7
Malathion	US EPA 8270/8260	ug/L	70	<20	32	<20	<20	<20	<20
Malathion	US EPA 3510/8270	ug/L	70	<2	4	<2	<2	<2	<2
Manganese Total	US EPA 200.8	mg/L	0.5	<0.001	120	<0.001	0.066	0.005	0.010
Manganese Total	US EPA 200.8	ug/L	500	<0.5	36	<0.5	11.0	3.5	8.4

Analyte	Method ID	Units	ADWG	Limit of Reporting	Number of Samples	Minimum	Maximum	Mean	95th Percentile
Mercury Total	USEPA 200.8	ug/L	1	<0.1	10	<0.1	<0.1	<0.1	<0.1
Methapyrilene	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Molybdenum Total	US EPA 200.8	ug/L	50	<1	36	<1	<1	<1	<1
Monochloroacetic Acid	US EPA SW 846 Method 8260 B	ug/L	-	<1	59	<1	4.0	1.2	3.1
N-2-Fluorenyl Acetamide	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Naphthalene	US EPA 8270/8260	ug/L	-	<10	32	<10	<10	<10	<10
Naphthalene	US EPA 3510/8270	ug/L	-	<1	36	<1	<1	<1	<1
Naphthalene	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Nickel Total	US EPA 200.8	ug/L	20	<1	36	<1	<1	<1	<1
Nitrate	APHA 21st Ed. 2005, Part 4110 B	mg/L	50	<0.1	12	<0.1	0.2	<0.1	0.2
Nitrobenzene	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
Nitrobenzene	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
N-Nitrosodibutylamine	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
N-Nitrosodiethylamine	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
N-Nitrosodimethylamine	US EPA 8270/8260	ug/L	0.1	<20	32	<20	<20	<20	<20
N-Nitrosodi-n-propylamine	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
N-Nitrosodi-n-propylamine	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
N-Nitrosodiphenyl & Diphenylamine	US EPA 3510/8270	ug/L	-	<4	4	<4	<4	<4	<4
N-Nitrosodiphenylamine	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
N-Nitrosomethylethylamine	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
N-Nitrosomorpholine	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
N-Nitrosopiperidine	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
N-Nitrosopyrrolidine	US EPA 3510/8270	ug/L	-	<4	4	<4	<4	<4	<4
Pentachlorobenzene	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Pentachloronitrobenzene	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Pentachlorophenol	US EPA 8270/8260	ug/L	10	<20	32	<20	<20	<20	<20
Pentachlorophenol	US EPA 3510/8270	ug/L	10	<4	4	<4	<4	<4	<4
pH	APHA 4500-H B	pH	-	<0.1	252	7.2	8.7	7.7	8.1
Phenacetin	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Phenanthrene	US EPA 8270/8260	ug/L	-	<10	32	<10	<10	<10	<10
Phenanthrene	US EPA 3510/8270	ug/L	-	<1	36	<1	<1	<1	<1
Phenanthrene	US EPA 3510/8270	ug/L	-	<2	4	<1.0	<2	<2	<2
Phenol	US EPA 8270/8260	ug/L	-	<10	32	<10	<10	<10	<10
Phenol	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Pirimphos-ethyl	US EPA 3510/8270	ug/L	0.5	<2	4	<2	<2	<2	<2
Polycyclic Aromatic Hydrocarbons Total	US EPA 3510/8270	ug/L	-	<0.5	36	<0.5	<0.5	<0.5	<0.5
Potassium Dissolved	US EPA 200.7	mg/L	-	<0.1	12	0.5	1.8	0.8	1.7

Analyte	Method ID	Units	ADWG	Limit of Reporting	Number of Samples	Minimum	Maximum	Mean	95th Percentile
Pronamide	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Prothiofos	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Pyrene	US EPA 8270/8260	ug/L	-	<10	32	<10	<10	<10	<10
Pyrene	US EPA 3510/8270	ug/L	-	<1	36	<1	<1	<1	<1
Pyrene	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Selenium Total	US EPA 200.8	ug/L	10	<2	36	<2	<2	<2	<2
Silver Total	US EPA 200.8	ug/L	100	<1	36	<1	<1	<1	<1
Sodium Dissolved	US EPA 200.7	mg/L	-	<0.1	12	2.7	7.5	3.9	7.5
Sulphate	APHA 21st Ed. 2005, Part 4110 B	mg/L	500	<0.4	12	0.6	33.0	8.4	33.0
Temperature	APHA 2550 B	deg. C	-	<0.1	120	9.0	25.5	17.1	24.5
Total Coliforms	APHA 9223 B	MPN/100mL	-	<1	252	<1	<1	<1	<1
Total Dissolved Salts	APHA 2540 C	mg/L	-	<20	36	<20	130	68	130
Tribromoacetic Acid	US EPA SW 846 Method 8260 B	ug/L	-	<10	59	<10	<10	<10	<10
Trichloroacetic Acid	US EPA SW 846 Method 8260 B	ug/L	100	<1	59	13	72	31	68
Trihalomethanes Total	HP 228-135	ug/L	250	<1	42	12	77	31	67
Trihalomethanes Total	US EPA 5030B/5035/8260B	mg/L	0.25	<0.001	18	0.017	0.041	0.030	0.040
True colour	Lachat QuikChem Method, Color in Waters 10-308-00-1-A	Pt.Co	-	<1	120	<1	2	1	2
Turbidity	APHA 2130 B	NTU	-	<0.1	120	0.1	1.8	0.3	0.6
Zinc Total	US EPA 200.8	ug/L	-	<5	36	<5	37	7	28

ADWG	Australian Drinking Water Guidelines – Health Guideline Value
CFU/mL	colony forming units per millilitre
Deg C	degrees Celsius
ug/L	micrograms per litre
mg/L	milligrams per litre
uS/cm	micro siemens per centimetre
MPN	most probable number
NTU	nephelometric units
Pt-Co	platinum-cobalt units

The 95th percentile is a statistical calculation based on ‘normal’ distribution. In the context of this report, it estimates the value for which 95% of all the water that passes through the distribution system in this 12 month period falls below.

Table 9.4 Summary data for water quality zone 3: South Canberra, Woden and Weston Creek

Analyte	Method ID	Units	ADWG	Limit of Reporting	Number of Samples	Minimum	Maximum	Mean	95th Percentile
1 Naphthylamine	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
1,2 Dichlorobenzene	US EPA 3510/8270	ug/L	1500	<2	4	<2	<2	<2	<2
1,2 Dichlorobenzene	US EPA 8270/8260	ug/L	1500	<20	32	<20	<20	<20	<20
1,2,4 Trichlorobenzene	US EPA 8270/8260	ug/L	30	<20	32	<20	<20	<20	<20
1,2,4 Trichlorobenzene	US EPA 3510/8270	ug/L	30	<2	4	<2	<2	<2	<2
1,3 Dichlorobenzene	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
1,3 Dichlorobenzene	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
1,3,5 Trinitrobenzene	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
1,4 Dichlorobenzene	US EPA 8270/8260	ug/L	40	<20	32	<20	<20	<20	<20
1,4 Dichlorobenzene	US EPA 3510/8270	ug/L	40	<2	4	<2	<2	<2	<2
2 Chloronaphthalene	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
2 Chloronaphthalene	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
2 Chlorophenol	US EPA 8270/8260	ug/L	300	<10	32	<10	<10	<10	<10
2 Chlorophenol	US EPA 3510/8270	ug/L	300	<2	4	<2	<2	<2	<2
2 Methylnaphthalene	US EPA 8270/8260	ug/L	-	<10	32	<10	<10	<10	<10
2 Methylnaphthalene	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
2 Methylphenol	US EPA 8270/8260	ug/L	-	<10	32	<10	<10	<10	<10
2 Methylphenol	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
2 Nitroaniline	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
2 Nitroaniline	US EPA 3510/8270	ug/L	-	<4	4	<4	<4	<4	<4
2 Nitrophenol	US EPA 8270/8260	ug/L	-	<10	32	<10	<20	<10	<10
2 Nitrophenol	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
2 Picoline	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
2,3,4,6 Tetrachlorophenol	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
2,3,4,6 Tetrachlorophenol	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
2,4 Dichlorophenol	US EPA 8270/8260	ug/L	200	<10	32	<10	<10	<10	<10
2,4 Dichlorophenol	US EPA 3510/8270	ug/L	200	<2	4	<2	<2	<2	<2
2,4 Dimethylphenol	US EPA 8270/8260	ug/L	-	<10	32	<10	<10	<10	<10
2,4 Dimethylphenol	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
2,4 Dinitrotoluene	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
2,4 Dinitrotoluene	US EPA 3510/8270	ug/L	-	<4	4	<4	<4	<4	<4
2,4,5 Trichlorophenol	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
2,4,5 Trichlorophenol	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
2,4,6 Trichlorophenol	US EPA 8270/8260	ug/L	20	<20	32	<20	<20	<20	<20
2,4,6 Trichlorophenol	US EPA 3510/8270	ug/L	20	<2	4	<2	<2	<2	<2
2,6 Dichlorophenol	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
2,6 Dichlorophenol	US EPA 8270/8260	ug/L	-	<10	32	<10	<10	<10	<10
2,6 Dinitrotoluene	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20

Analyte	Method ID	Units	ADWG	Limit of Reporting	Number of Samples	Minimum	Maximum	Mean	95th Percentile
2,6 Dinitrotoluene	US EPA 3510/8270	ug/L	-	<4	4	<4	<4	<4	<4
3 Methylcholanthrene	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
3 Nitroaniline	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
3 Nitroaniline	US EPA 3510/8270	ug/L	-	<4	4	<4	<4	<4	<4
3,3 Dichlorobenzidine	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
3,4 Methylphenol	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
3,4 Methylphenol	US EPA 3510/8270	ug/L	-	<4	4	<4	<4	<4	<4
4 Aminobiphenyl	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
4 Bromophenyl phenyl ether	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
4 Bromophenyl phenyl ether	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
4 Chloro 3 methylphenol	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
4 Chloro 3 methylphenol	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
4 Chloroaniline	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
4 Chloroaniline	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
4 Chlorophenyl phenyl ether	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
4 Chlorophenyl phenyl ether	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
4 Nitroaniline	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
4 Nitroaniline	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
4 Nitroquinoline N oxide	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
4,4 DDD	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
4,4 DDD	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
4,4 DDE	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
4,4 DDE	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
4,4 DDT	US EPA 3510/8270	ug/L	9	<4	4	<4	<4	<4	<4
4,4 DDT	US EPA 8270/8260	ug/L	9	<20	32	<20	<20	<20	<20
5 Nitro o toluidine	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
7,12 Dimethylbenz(a) anthracene	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
a BHC	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
Acenaphthene	US EPA 8270/8260	ug/L	-	<10	32	<10	<10	<10	<10
Acenaphthene	US EPA 3510/8270	ug/L	-	<1	35	<1	<1	<1	<1
Acenaphthene	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Acenaphthylene	US EPA 8270/8260	ug/L	-	<10	32	<10	<10	<10	<10
Acenaphthylene	US EPA 3510/8270	ug/L	-	<1	35	<1	<1	<1	<1
Acenaphthylene	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Acetophenone	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Aldrin	US EPA 8270/8260	ug/L	0.3	<20	32	<20	<20	<20	<20
Aldrin	US EPA 3510/8270	ug/L	0.3	<2	4	<2	<2	<2	<2
Alkalinity bicarb	APHA 2320 A/B	mg/L	-	<0.1	60	11.3	42.3	36.4	40.8
Alkalinity carb	APHA 2320 A/B	mg/L	-	<0.1	60	<0.1	<0.1	<0.1	<0.1
Alkalinity hydrox	APHA 2320 A/B	mg/L	-	<0.1	60	<0.1	<0.1	<0.1	<0.1

Analyte	Method ID	Units	ADWG	Limit of Reporting	Number of Samples	Minimum	Maximum	Mean	95th Percentile
Alkalinity total	APHA 2320 A/B	mg/L	-	<1	60	11	42	36	41
alpha BHC	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
alpha Endosulfan	US EPA 3510/8270	ug/L	20	<2	4	<2	<2	<2	<2
Aluminium Acid Soluble	US EPA 200.8	ug/L	-	<5	36	19	86	32	50
Aluminium Total	US EPA 200.7	mg/L	-	<0.02	9	0.03	0.07	0.04	0.06
Aluminium Total	US EPA 200.8	ug/L	-	<9	36	26	180	43	65
Aniline	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
Aniline	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Anthracene	US EPA 8270/8260	ug/L	-	<10	32	<10	<10	<10	<10
Anthracene	US EPA 3510/8270	ug/L	-	<1	35	<1	<1	<1	<1
Anthracene	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Antimony Total Screen	US EPA 200.8	ug/L	3	<3	36	<3	<3	<3	<3
Arsenic Total	US EPA 200.8	ug/L	10	<1	36	<1	<1	<1	<1
Asbestos	AS 4964-2000	Present/ Absent	-	Absent	36	Absent	Present	-	-
Azobenzene	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
Azobenzene	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
b BHC	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
Barium Total	US EPA 200.8	ug/L	2000	<1	36	2	8	4	7
Benz(a)anthracene	US EPA 8270/8260	ug/L	-	<10	32	<10	<10	<10	<10
Benz(a)anthracene	US EPA 3510/8270	ug/L	-	<1	35	<1	<1	<1	<1
Benz(a)anthracene	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Benzo (b,k) fluoranthene	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
Benzo(a)pyrene	US EPA 8270/8260	ug/L	0.01	<10	32	<10	<10	<10	<10
Benzo(a)pyrene	US EPA 3510/8270	ug/L	0.01	<0.5	35	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	US EPA 3510/8270	ug/L	0.01	<2	4	<2	<2	<2	<2
Benzo(b) & Benzo(k) fluoranthene	US EPA 3510/8270	ug/L	-	<4	4	<4	<4	<4	<4
Benzo(b)fluoranthene	US EPA 3510/8270	ug/L	-	<1	35	<1	<1	<1	<1
Benzo(g,h,i)perylene	US EPA 8270/8260	ug/L	-	<10	32	<10	<10	<10	<10
Benzo(g,h,i)perylene	US EPA 3510/8270	ug/L	-	<1	35	<1	<1	<1	<1
Benzo(g,h,i)perylene	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Benzo(k)fluoranthene	US EPA 3510/8270	ug/L	-	<1	35	<1	<1	<1	<1
Benzyl alcohol	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
Beryllium Total	US EPA 200.8	ug/L	60	<0.1	36	<0.1	<0.1	<0.1	<0.1
beta BHC	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
beta Endosulfan	US EPA 3510/8270	ug/L	20	<2	4	<2	<2	<2	<2
Bis(2-chloroisopropyl) ether	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
Bis(2-chloroethoxy) methane	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
Bis(2-chloroethoxy) methane	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2

Analyte	Method ID	Units	ADWG	Limit of Reporting	Number of Samples	Minimum	Maximum	Mean	95th Percentile
Bis(2-chloroethyl) ether	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
Bis(2-chloroethyl) ether	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Bis(2-ethylhexyl) phthalate	US EPA 8270/8260	ug/L	10	<20	32	<20	<20	<20	<20
bis(2-ethylhexyl) phthalate	US EPA 3510/8270	ug/L	10	<5	4	<5	<5	<5	<5
Boron Total	US EPA 200.7	mg/L	4	<0.01	10	<0.01	0.03	<0.01	<0.01
Bromoacetic Acid	US EPA SW 846 Method 8260 B	ug/L	-	<5	60	<5	<5	<5	<5
Bromochloroacetic Acid	US EPA SW 846 Method 8260 B	ug/L	-	<1	60	<1	5	1	4
Bromodichloroacetic Acid	US EPA SW 846 Method 8260 B	ug/L	-	<1	60	<1	8	2	7
Bromoform	US EPA 5030B/5035/8260B	mg/L	-	<0.001	18	<0.001	<0.005	<0.001	<0.001
Bromoform	HP 228-135	ug/L	-	<1	42	<1	<1	<1	<1
Butyl benzyl phthalate	US EPA 8270/8260	ug/L	-	<10	32	<10	<10	<10	<10
Butyl benzyl phthalate	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Cadmium Total	US EPA 200.8	ug/L	2	<0.05	36	<0.05	<0.05	<0.05	<0.05
Calcium Dissolved	US EPA 200.7	mg/L	-	<0.05	36	11.00	19.00	13.58	18.25
Carbazole	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
Carbazole	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Chlorfenvinphos	US EPA 3510/8270	ug/L	2	<2	4	<2	<2	<2	<2
Chloride	APHA 21st Ed. 2005, Part 4110 B	mg/L	-	<0.1	12	<0.1	7.5	3.9	7.3
Chlorine Combined	APHA 4500-CL G	mg/L	-	<0.03	252	<0.03	0.73	0.10	0.27
Chlorine Free	APHA 4500-CL G	mg/L	-	<0.03	252	0.05	1.44	0.79	1.15
Chlorine Total	APHA 4500-CL G	mg/L	5	<0.03	252	0.06	1.76	0.89	1.28
Chlorobenzilate	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Chloroform	US EPA 5030B/5035/8260B	mg/L	-	<0.001	18	0.015	0.049	0.029	0.041
Chloroform	HP 228-135	ug/L	-	<1	42	8	92	25	45
Chlorpyrifos	US EPA 8270/8260	ug/L	10	<20	32	<20	<20	<20	<20
Chlorpyrifos	US EPA 3510/8270	ug/L	10	<2	4	<2	<2	<2	<2
Chlorpyrifos-methyl	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Chromium Total	US EPA 200.8	ug/L	50	<2	36	<2	<2	<2	<2
Chrysene	US EPA 8270/8260	ug/L	-	<10	32	<10	<10	<10	<10
Chrysene	US EPA 3510/8270	ug/L	-	<1	35	<1	<1	<1	<1
Chrysene	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Cobalt Total	US EPA 200.8	ug/L	-	<0.2	36	<0.2	<0.2	<0.2	<0.2
Conductivity	APHA 2510 B	uS/cm	-	<2	36	84	190	111	180
Copper Total	US EPA 200.8	ug/L	2000	<1	36	<1	170	28	79
Copper Total	US EPA 200.7	ug/L	2000	<1	84	4	490	37	114
Cyanide	APHA 4500_CN	mg/L	0.08	<0.004	10	<0.004	<0.004	<0.004	<0.004

Analyte	Method ID	Units	ADWG	Limit of Reporting	Number of Samples	Minimum	Maximum	Mean	95th Percentile
d BHC	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
delta-BHC	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Diazinon	US EPA 8270/8260	ug/L	4	<20	32	<20	<20	<20	<20
Diazinon	US EPA 3510/8270	ug/L	4	<2	4	<2	<2	<2	<2
Dibenz(a,h)anthracene	US EPA 8270/8260	ug/L	-	<10	32	<10	<10	<10	<10
Dibenz(a,h)anthracene	US EPA 3510/8270	ug/L	-	<1	35	<1	<1	<1	<1
Dibenz(a,h)anthracene	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Dibenzofuran	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
Dibenzofuran	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Dibromoacetic Acid	US EPA SW 846 Method 8260 B	ug/L	-	<1	60	<1	2	<1	<1
Dibromochloroacetic Acid	US EPA SW 846 Method 8260 B	ug/L	-	<10	60	<10	<10	<10	<10
Dibromochloromethane	US EPA 5030B/5035/8260B	mg/L	-	<0.001	18	<0.001	<0.005	<0.001	<0.001
Dibromochloromethane	HP 228-135	ug/L	-	<1	42	<1	<1	<1	<1
Dichloroacetic Acid	US EPA SW 846 Method 8260 B	ug/L	100	<10	60	<10	44	19	36
Dichlorobenzidine	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
Dichlorobromomethane	US EPA 5030B/5035/8260B	mg/L	-	<0.001	18	<0.001	0.003	0.002	0.002
Dichlorobromomethane	HP 228-135	ug/L	-	<1	42	<1	12	3	7
Dieldrin	US EPA 8270/8260	ug/L	0.3	<20	32	<20	<20	<20	<20
Dieldrin	US EPA 3510/8270	ug/L	0.3	<2	4	<2	<2	<2	<2
Diethyl phthalate	US EPA 8270/8260	ug/L	-	<10	32	<10	<10	<10	<10
Diethyl phthalate	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Dimethoate	US EPA 8270/8260	ug/L	7	<20	32	<20	<20	<20	<20
Dimethoate	US EPA 3510/8270	ug/L	7	<2	4	<2	<2	<2	<2
Dimethyl phthalate	US EPA 8270/8260	ug/L	-	<10	32	<10	<10	<10	<10
Dimethyl phthalate	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Dimethylaminoazobenzene	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Di-n-butyl phthalate	US EPA 8270/8260	ug/L	-	<10	32	<10	<10	<10	<10
Di-n-butyl phthalate	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Di-n-octyl phthalate	US EPA 8270/8260	ug/L	-	<10	32	<10	<10	<10	<10
Di-n-octyl phthalate	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
E.Coli	APHA 9223 B	MPN/100mL	<1	<1	252	<1	<1	<1	<1
Endosulfan sulfate	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Endosulfan sulphate	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
Endosulphan 1	US EPA 8270/8260	ug/L	20	<20	32	<20	<20	<20	<20
Endosulphan 11	US EPA 8270/8260	ug/L	20	<20	32	<20	<20	<20	<20
Endrin	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
Endrin	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2

Analyte	Method ID	Units	ADWG	Limit of Reporting	Number of Samples	Minimum	Maximum	Mean	95th Percentile
Endrin Aldehyde	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
Ethion	US EPA 8270/8260	ug/L	4	<20	32	<20	<20	<20	<20
Ethion	US EPA 3510/8270	ug/L	4	<2	4	<2	<2	<2	<2
Fenitrothion	US EPA 8270/8260	ug/L	7	<20	32	<20	<20	<20	<20
Fenthion	US EPA 3510/8270	ug/L	7	<2	4	<2	<2	<2	<2
Fluoranthene	US EPA 8270/8260	ug/L	-	<10	32	<10	<10	<10	<10
Fluoranthene	US EPA 3510/8270	ug/L	-	<1	35	<1	<1	<1	<1
Fluoranthene	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Fluorene	US EPA 8270/8260	ug/L	-	<10	32	<10	<20	<10	<10
Fluorene	US EPA 3510/8270	ug/L	-	<1	35	<1	<1	<1	<1
Fluorene	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Fluoride	APHA 4500-FC	mg/L	1.5	<0.1	36	0.6	0.9	0.8	0.9
g BHC (Lindane)	US EPA 8270/8260	ug/L	10	<20	32	<20	<20	<20	<20
gamma-BHC	US EPA 3510/8270	ug/L	10	<2	4	<2	<2	<2	<2
Hardness Total	APHA 2340 B	mg/L	-	<0.1	36	30.0	64.0	40.0	61.0
Heptachlor	US EPA 8270/8260	ug/L	0.3	<20	32	<20	<20	<20	<20
Heptachlor	US EPA 3510/8270	ug/L	0.3	<2	4	<2	<2	<2	<2
Heptachlorepoxide	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Heptachlorepoxide	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
Heterotrophic Plate Count	APHA 9215 B	CFU/mL	-	<1	252	<1	76	2	6
Hexachloro 1,3 butadiene	US EPA 8270/8260	ug/L	0.7	<20	32	<20	<20	<20	<20
Hexachlorobutadiene	US EPA 3510/8270	ug/L	0.7	<2	4	<2	<2	<2	<2
Hexachlorobenzene	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
Hexachlorobenzene	US EPA 3510/8270	ug/L	-	<4	4	<4	<4	<4	<4
Hexachlorocyclopentadiene	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
Hexachlorocyclopentadiene	US EPA 3510/8270	ug/L	-	<10	4	<10	<10	<10	<10
Hexachloroethane	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
Hexachloroethane	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Hexachloropropylene	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Indeno(1,2,3,cd)pyrene	US EPA 8270/8260	ug/L	-	<10	32	<10	<10	<10	<10
Indeno(1,2,3,cd)pyrene	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Indeno(1,2,3,cd)pyrene	US EPA 3510/8270	ug/L	-	<1	35	<1	<1	<1	<1
Iodide	ASTM D19	mg/L	0.5	<0.05	12	<0.05	<0.05	<0.05	<0.05
Iron Total	US EPA 200.7	mg/L	-	<0.02	60	<0.02	0.16	<0.02	<0.02
Isophorone	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
Isophorone	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Lead Total	US EPA 200.8	ug/L	10	<0.2	24	<0.2	0.9	0.3	0.7
Lead Total	US EPA 200.8	ug/L	10	<0.2	36	<0.2	2.0	0.3	0.9
Magnesium Dissolved	US EPA 200.7	mg/L	-	<0.05	36	0.71	3.80	1.49	3.80
Malathion	US EPA 8270/8260	ug/L	70	<20	32	<20	<20	<20	<20

Analyte	Method ID	Units	ADWG	Limit of Reporting	Number of Samples	Minimum	Maximum	Mean	95th Percentile
Malathion	US EPA 3510/8270	ug/L	70	<2	4	<2	<2	<2	<2
Manganese Total	US EPA 200.8	mg/L	0.5	<0.001	120	<0.001	0.051	0.004	0.013
Manganese Total	US EPA 200.8	ug/L	500	<0.5	36	<0.5	48	4.3	12.3
Mercury Total	USEPA 200.8	ug/L	1	<0.1	10	<0.1	<0.1	<0.1	<0.1
Methapyrilene	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Molybdenum Total	US EPA 200.8	ug/L	50	<1	36	<1	16	<1	<1
Monochloroacetic Acid	US EPA SW 846 Method 8260 B	ug/L	-	<1	60	<1	4	1	3
N-2-Fluorenyl Acetamide	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Naphthalene	US EPA 8270/8260	ug/L	-	<10	32	<10	<10	<10	<10
Naphthalene	US EPA 3510/8270	ug/L	-	<1	35	<1	<1	<1	<1
Naphthalene	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Nickel Total	US EPA 200.8	ug/L	20	<1	36	<1	2	<1	1
Nitrate	APHA 21st Ed. 2005, Part 4110 B	mg/L	50	<0.1	12	<0.1	0.2	<0.1	0.2
Nitrobenzene	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
Nitrobenzene	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
N-Nitrosodibutylamine	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
N-Nitrosodiethylamine	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
N-Nitrosodimethylamine	US EPA 8270/8260	ug/L	0.1	<20	32	<20	<20	<20	<20
N-Nitrosodi-n-propylamine	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
N-Nitrosodi-n-propylamine	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
N-Nitrosodiphenyl & Diphenylamine	US EPA 3510/8270	ug/L	-	<4	4	<4	<4	<4	<4
N-Nitrosodiphenylamine	US EPA 8270/8260	ug/L	-	<20	32	<20	<20	<20	<20
N-Nitrosomethylethylamine	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
N-Nitrosomorpholine	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
N-Nitrosopiperidine	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
N-Nitrosopyrrolidine	US EPA 3510/8270	ug/L	-	<4	4	<4	<4	<4	<4
Pentachlorobenzene	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Pentachloronitrobenzene	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Pentachlorophenol	US EPA 8270/8260	ug/L	10	<20	32	<20	<20	<20	<20
Pentachlorophenol	US EPA 3510/8270	ug/L	10	<4	4	<4	<4	<4	<4
pH	APHA 4500-H B	pH	-	<0.1	252	7.1	8.2	7.6	7.8
Phenacetin	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Phenanthrene	US EPA 8270/8260	ug/L	-	<10	32	<10	<10	<10	<10
Phenanthrene	US EPA 3510/8270	ug/L	-	<1	35	<1	<1	<1	<1
Phenanthrene	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Phenol	US EPA 8270/8260	ug/L	-	<10	32	<10	<10	<10	<10
Phenol	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Pirimphos-ethyl	US EPA 3510/8270	ug/L	0.5	<2	4	<2	<2	<2	<2

Analyte	Method ID	Units	ADWG	Limit of Reporting	Number of Samples	Minimum	Maximum	Mean	95th Percentile
Polycyclic Aromatic Hydrocarbons Total	US EPA 3510/8270	ug/L	-	<0.5	35	<0.5	<0.5	<0.5	<0.5
Potassium Dissolved	US EPA 200.7	mg/L	-	<0.1	12	0.4	1.9	0.8	1.8
Pronamide	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Prothiofos	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Pyrene	US EPA 8270/8260	ug/L	-	<10	32	<10	<10	<10	<10
Pyrene	US EPA 3510/8270	ug/L	-	<1	35	<1	<1	<1	<1
Pyrene	US EPA 3510/8270	ug/L	-	<2	4	<2	<2	<2	<2
Selenium Total	US EPA 200.8	ug/L	10	<2	36	<2	<2	<2	<2
Silver Total	US EPA 200.8	ug/L	100	<1	36	<1	<1	<1	<1
Sodium Dissolved	US EPA 200.7	mg/L	-	<0.1	12	2.6	7.6	3.6	7.4
Sulphate	APHA 21st Ed. 2005, Part 4110 B	mg/L	500	<0.4	12	0.6	35.0	6.9	33.9
Temperature	APHA 2550 B	deg. C	-	<0.1	120	9.0	25.5	17.0	23.5
Total Coliforms	APHA 9223 B	MPN/100mL	-	<1	252	<1	1400	6	<1
Total Dissolved Salts	APHA 2540 C	mg/L	-	<20	36	37	160	72	120
Tribromoacetic Acid	US EPA SW 846 Method 8260 B	ug/L	-	<10	60	<10	<10	<10	<10
Trichloroacetic Acid	US EPA SW 846 Method 8260 B	ug/L	100	<1	60	12	63	26	49
Trihalomethanes Total	HP 228-135	ug/L	250	<1	42	8	100	27	51
Trihalomethanes Total	US EPA 5030B/5035/8260B	mg/L	0.25	<0.001	18	0.016	0.051	0.030	0.043
True colour	Lachat QuikChem Method, Color in Waters 10-308-00-1-A	Pt.Co	-	<1	120	<1	3	1	2
Turbidity	APHA 2130 B	NTU	-	<0.1	120	0.1	2.7	0.4	0.7
Zinc Total	US EPA 200.8	ug/L	-	<5	36	<5	18	<5	11

ADWG	Australian Drinking Water Guidelines – Health Guideline Value
CFU/mL	colony forming units per millilitre
Deg C	degrees Celsius
ug/L	micrograms per litre
mg/L	milligrams per litre
uS/cm	micro siemens per centimetre
MPN	most probable number
NTU	nephelometric units
Pt-Co	platinum-cobalt units

The 95th percentile is a statistical calculation based on 'normal' distribution. In the context of this report, it estimates the value for which 95% of all the water that passes through the distribution system in this 12 month period falls below.

Table 9.5 Summary data for water quality zone 4: Tuggeranong

Analyte	Method ID	Units	ADWG	Limit of Reporting	Number of Samples	Minimum	Maximum	Mean	95th Percentile
1 Naphthylamine	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
1,2 Dichlorobenzene	US EPA 3510/8270	ug/L	1500	<2	3	<2	<2	<2	<2
1,2 Dichlorobenzene	US EPA 8270/8260	ug/L	1500	<20	21	<20	<20	<20	<20
1,2,4 Trichlorobenzene	US EPA 8270/8260	ug/L	30	<20	21	<20	<20	<20	<20
1,2,4 Trichlorobenzene	US EPA 3510/8270	ug/L	30	<2	3	<2	<2	<2	<2
1,3 Dichlorobenzene	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
1,3 Dichlorobenzene	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
1,3,5 Trinitrobenzene	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
1,4 Dichlorobenzene	US EPA 8270/8260	ug/L	40	<20	21	<20	<20	<20	<20
1,4 Dichlorobenzene	US EPA 3510/8270	ug/L	40	<2	3	<2	<2	<2	<2
2 Chloronaphthalene	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
2 Chloronaphthalene	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
2 Chlorophenol	US EPA 8270/8260	ug/L	300	<10	21	<10	<10	<10	<10
2 Chlorophenol	US EPA 3510/8270	ug/L	300	<2	3	<2	<2	<2	<2
2 Methylnaphthalene	US EPA 8270/8260	ug/L	-	<10	21	<10	<10	<10	<10
2 Methylnaphthalene	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
2 Methylphenol	US EPA 8270/8260	ug/L	-	<10	21	<10	<10	<10	<10
2 Methylphenol	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
2 Nitroaniline	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
2 Nitroaniline	US EPA 3510/8270	ug/L	-	<4	3	<4	<4	<4	<4
2 Nitrophenol	US EPA 8270/8260	ug/L	-	<10	21	<10	<10	<10	<10
2 Nitrophenol	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
2 Picoline	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
2,3,4,6 Tetrachlorophenol	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
2,3,4,6 Tetrachlorophenol	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
2,4 Dichlorophenol	US EPA 8270/8260	ug/L	200	<10	21	<10	<10	<10	<10
2,4 Dichlorophenol	US EPA 3510/8270	ug/L	200	<2	3	<2	<2	<2	<2
2,4 Dimethylphenol	US EPA 8270/8260	ug/L	-	<10	21	<10	<10	<10	<10
2,4 Dimethylphenol	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
2,4 Dinitrotoluene	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
2,4 Dinitrotoluene	US EPA 3510/8270	ug/L	-	<4	3	<4	<4	<4	<4
2,4,5 Trichlorophenol	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
2,4,5 Trichlorophenol	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
2,4,6 Trichlorophenol	US EPA 8270/8260	ug/L	20	<20	21	<20	<20	<20	<20
2,4,6 Trichlorophenol	US EPA 3510/8270	ug/L	20	<2	3	<2	<2	<2	<2
2,6 Dichlorophenol	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
2,6 Dichlorophenol	US EPA 8270/8260	ug/L	-	<10	21	<10	<10	<10	<10
2,6 Dinitrotoluene	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
2,6 Dinitrotoluene	US EPA 3510/8270	ug/L	-	<4	3	<4	<4	<4	<4

Analyte	Method ID	Units	ADWG	Limit of Reporting	Number of Samples	Minimum	Maximum	Mean	95th Percentile
3 Methylcholanthrene	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
3 Nitroaniline	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
3 Nitroaniline	US EPA 3510/8270	ug/L	-	<4	3	<4	<4	<4	<4
3,3 Dichlorobenzidine	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
3,4 Methylphenol	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
3,4 Methylphenol	US EPA 3510/8270	ug/L	-	<4	3	<4	<4	<4	<4
4 Aminobiphenyl	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
4 Bromophenyl phenyl ether	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
4 Bromophenyl phenyl ether	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
4 Chloro 3 methylphenol	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
4 Chloro 3 methylphenol	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
4 Chloroaniline	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
4 Chloroaniline	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
4 Chlorophenyl phenyl ether	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
4 Chlorophenyl phenyl ether	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
4 Nitroaniline	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
4 Nitroaniline	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
4 Nitroquinoline N oxide	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
4,4 DDD	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
4,4 DDD	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
4,4 DDE	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
4,4 DDE	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
4,4 DDT	US EPA 3510/8270	ug/L	9	<4	3	<4	<4	<4	<4
4,4 DDT	US EPA 8270/8260	ug/L	9	<20	21	<20	<20	<20	<20
5 Nitro o toluidine	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
7,12 Dimethylbenz(a)anthracene	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
a BHC	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
Acenaphthene	US EPA 8270/8260	ug/L	-	<10	21	<10	<10	<10	<10
Acenaphthene	US EPA 3510/8270	ug/L	-	<1	23	<1	<1	<1	<1
Acenaphthene	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Acenaphthylene	US EPA 8270/8260	ug/L	-	<10	21	<10	<10	<10	<10
Acenaphthylene	US EPA 3510/8270	ug/L	-	<1	23	<1	<1	<1	<1
Acenaphthylene	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Acetophenone	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Aldrin	US EPA 8270/8260	ug/L	0.3	<20	21	<20	<20	<20	<20
Aldrin	US EPA 3510/8270	ug/L	0.3	<2	3	<2	<2	<2	<2
Alkalinity bicarb	APHA 2320 A/B	mg/L	-	<0.1	60	34.5	45.4	38.5	42.8
Alkalinity carb	APHA 2320 A/B	mg/L	-	<0.1	60	<0.1	6.3	0.2	<0.1
Alkalinity hydrox	APHA 2320 A/B	mg/L	-	<0.1	60	<0.1	<0.1	<0.1	<0.1
Alkalinity total	APHA 2320 A/B	mg/L	-	<1	60	34	45	39	44
alpha BHC	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2

Analyte	Method ID	Units	ADWG	Limit of Reporting	Number of Samples	Minimum	Maximum	Mean	95th Percentile
alpha Endosulfan	US EPA 3510/8270	ug/L	20	<2	3	<2	<2	<2	<2
Aluminium Acid Soluble	US EPA 200.8	ug/L	-	<5	24	21	110	33	44
Aluminium Total	US EPA 200.7	mg/L	-	<0.02	6	0.03	0.05	0.04	0.05
Aluminium Total	US EPA 200.8	ug/L	-	<9	24	29	130	47	110
Aniline	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
Aniline	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Anthracene	US EPA 8270/8260	ug/L	-	<10	21	<10	<10	<10	<10
Anthracene	US EPA 3510/8270	ug/L	-	<1	23	<1	<1	<1	<1
Anthracene	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Antimony Total Screen	US EPA 200.8	ug/L	3	<3	24	<3	<3	<3	<3
Arsenic Total	US EPA 200.8	ug/L	10	<1	24	<1	<1	<1	<1
Asbestos	AS 4964-2000	Present/ Absent	-	Absent	24	Absent	Present	-	-
Azobenzene	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
Azobenzene	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
b BHC	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
Barium Total	US EPA 200.8	ug/L	2000	<1	24	3	7	4	7
Benz(a)anthracene	US EPA 8270/8260	ug/L	-	<10	21	<10	<10	<10	<10
Benz(a)anthracene	US EPA 3510/8270	ug/L	-	<1	23	<1	<1	<1	<1
Benz(a)anthracene	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Benzo (b,k) fluoranthene	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
Benzo(a)pyrene	US EPA 8270/8260	ug/L	0.01	<10	21	<10	<10	<10	<10
Benzo(a)pyrene	US EPA 3510/8270	ug/L	0.01	<0.5	23	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	US EPA 3510/8270	ug/L	0.01	<2	3	<2	<2	<2	<2
Benzo(b) & Benzo(k) fluoranthene	US EPA 3510/8270	ug/L	-	<4	3	<4	<4	<4	<4
Benzo(b)fluoranthene	US EPA 3510/8270	ug/L	-	<1	23	<1	<1	<1	<1
Benzo(g,h,i)perylene	US EPA 8270/8260	ug/L	-	<10	21	<10	<10	<10	<10
Benzo(g,h,i)perylene	US EPA 3510/8270	ug/L	-	<1	23	<1	<1	<1	<1
Benzo(g,h,i)perylene	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Benzo(k)fluoranthene	US EPA 3510/8270	ug/L	-	<1	23	<1	<1	<1	<1
Benzyl alcohol	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
Beryllium Total	US EPA 200.8	ug/L	60	<0.1	24	<0.1	<0.1	<0.1	<0.1
beta BHC	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
beta Endosulfan	US EPA 3510/8270	ug/L	20	<2	3	<2	<2	<2	<2
Bis(2-chloroisopropyl) ether	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
Bis(2-chloroethoxy) methane	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
Bis(2-chloroethoxy) methane	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Bis(2-chloroethyl) ether	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
Bis(2-chloroethyl) ether	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Bis(2-ethylhexyl) phthalate	US EPA 8270/8260	ug/L	10	<20	21	<20	<20	<20	<20

Analyte	Method ID	Units	ADWG	Limit of Reporting	Number of Samples	Minimum	Maximum	Mean	95th Percentile
bis(2-ethylhexyl) phthalate	US EPA 3510/8270	ug/L	10	<5	3	<5	16	<5	14.65
Boron Total	US EPA 200.7	mg/L	4	<0.01	10	<0.01	<0.01	<0.01	<0.01
Bromoacetic Acid	US EPA SW 846 Method 8260 B	ug/L	-	<5	60	<5	<5	<5	<5
Bromochloroacetic Acid	US EPA SW 846 Method 8260 B	ug/L	-	<1	60	<1	5	2	5
Bromodichloroacetic Acid	US EPA SW 846 Method 8260 B	ug/L	-	<1	60	<1	8	3	7
Bromoform	US EPA 5030B/5035/8260B	mg/L	-	<0.001	18	<0.001	<0.001	<0.001	<0.001
Bromoform	HP 228-135	ug/L	-	<1	42	<1	<1	<1	<1
Butyl benzyl phthalate	US EPA 8270/8260	ug/L	-	<10	21	<10	<10	<10	<10
Butyl benzyl phthalate	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Cadmium Total	US EPA 200.8	ug/L	2	<0.05	24	<0.05	<0.05	<0.05	<0.05
Calcium Dissolved	US EPA 200.7	mg/L	-	<0.05	24	11.00	21.00	14.58	19.00
Carbazole	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
Carbazole	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Chlorfenvinphos	US EPA 3510/8270	ug/L	2	<2	3	<2	<2	<2	<2
Chloride	APHA 21st Ed. 2005, Part 4110 B	mg/L	-	<0.1	12	<0.1	7.4	4.0	7.2
Chlorine Combined	APHA 4500-CL G	mg/L	-	<0.03	252	<0.03	0.85	0.1	0.2
Chlorine Free	APHA 4500-CL G	mg/L	-	<0.03	252	0.11	1.36	0.69	1.06
Chlorine Total	APHA 4500-CL G	mg/L	5	<0.03	252	0.23	1.48	0.8	1.1
Chlorobenzilate	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Chloroform	US EPA 5030B/5035/8260B	mg/L	-	<0.001	18	0.018	0.057	0.029	0.040
Chloroform	HP 228-135	ug/L	-	<1	42	10	140	33	80
Chlorpyrifos	US EPA 8270/8260	ug/L	10	<20	21	<20	<20	<20	<20
Chlorpyrifos	US EPA 3510/8270	ug/L	10	<2	3	<2	<2	<2	<2
Chlorpyrifos-methyl	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Chromium Total	US EPA 200.8	ug/L	50	<2	24	<2	<2	<2	<2
Chrysene	US EPA 8270/8260	ug/L	-	<10	21	<10	<10	<10	<10
Chrysene	US EPA 3510/8270	ug/L	-	<1	23	<1	<1	<1	<1
Chrysene	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Cobalt Total	US EPA 200.8	ug/L	-	<0.2	24	<0.2	<0.2	<0.2	<0.2
Conductivity	APHA 2510 B	uS/cm	-	<2	28	86	190	117	190
Copper Total	US EPA 200.8	ug/L	2000	<1	24	<1	56	14	51
Copper Total	US EPA 200.7	ug/L	2000	<1	96	<1	180	21	58
Cyanide	APHA 4500_CN	mg/L	0.08	<0.004	10	<0.004	<0.004	<0.004	<0.004
d BHC	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
delta-BHC	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Diazinon	US EPA 8270/8260	ug/L	4	<20	21	<20	<20	<20	<20

Analyte	Method ID	Units	ADWG	Limit of Reporting	Number of Samples	Minimum	Maximum	Mean	95th Percentile
Diazinon	US EPA 3510/8270	ug/L	4	<2	3	<2	<2	<2	<2
Dibenz(a,h)anthracene	US EPA 8270/8260	ug/L	-	<10	21	<10	<10	<10	<10
Dibenz(a,h)anthracene	US EPA 3510/8270	ug/L	-	<1	23	<1	<1	<1	<1
Dibenz(a,h)anthracene	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Dibenzofuran	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
Dibenzofuran	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Dibromoacetic Acid	US EPA SW 846 Method 8260 B	ug/L	-	<1	60	<1	<1	<1	<1
Dibromochloroacetic Acid	US EPA SW 846 Method 8260 B	ug/L	-	<10	60	<10	<10	<10	<10
Dibromochloromethane	US EPA 5030B/5035/8260B	mg/L	-	<0.001	18	<0.001	<0.001	<0.001	<0.001
Dibromochloromethane	HP 228-135	ug/L	-	<1	42	<1	<1	<1	<1
Dichloroacetic Acid	US EPA SW 846 Method 8260 B	ug/L	100	<10	60	<10	46	21	43
Dichlorobenzidine	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
Dichlorobromomethane	US EPA 5030B/5035/8260B	mg/L	-	<0.001	18	<0.001	0.003	0.002	0.002
Dichlorobromomethane	HP 228-135	ug/L	-	<1	42	<1	19	4	9
Dieldrin	US EPA 8270/8260	ug/L	0.3	<20	21	<20	<20	<20	<20
Dieldrin	US EPA 3510/8270	ug/L	0.3	<2	3	<2	<2	<2	<2
Diethyl phthalate	US EPA 8270/8260	ug/L	-	<10	21	<10	<10	<10	<10
Diethyl phthalate	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Dimethoate	US EPA 8270/8260	ug/L	7	<20	21	<20	<20	<20	<20
Dimethoate	US EPA 3510/8270	ug/L	7	<2	3	<2	<2	<2	<2
Dimethyl phthalate	US EPA 8270/8260	ug/L	-	<10	21	<10	<10	<10	<10
Dimethyl phthalate	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Dimethylaminoazobenzene	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Di-n-butyl phthalate	US EPA 8270/8260	ug/L	-	<10	21	<10	<10	<10	<10
Di-n-butyl phthalate	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Di-n-octyl phthalate	US EPA 8270/8260	ug/L	-	<10	21	<10	<10	<10	<10
Di-n-octyl phthalate	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
E.Coli	APHA 9223 B	MPN/100mL	<1	<1	252	<1	<1	<1	<1
Endosulfan sulfate	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Endosulfan sulphate	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
Endosulphan 1	US EPA 8270/8260	ug/L	20	<20	21	<20	<20	<20	<20
Endosulphan 11	US EPA 8270/8260	ug/L	20	<20	21	<20	<20	<20	<20
Endrin	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
Endrin	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Endrin Aldehyde	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
Ethion	US EPA 8270/8260	ug/L	4	<20	21	<20	<20	<20	<20

Analyte	Method ID	Units	ADWG	Limit of Reporting	Number of Samples	Minimum	Maximum	Mean	95th Percentile
Ethion	US EPA 3510/8270	ug/L	4	<2	3	<2	<2	<2	<2
Fenitrothion	US EPA 8270/8260	ug/L	7	<20	21	<20	<20	<20	<20
Fenthion	US EPA 3510/8270	ug/L	7	<2	3	<2	<2	<2	<2
Fluoranthene	US EPA 8270/8260	ug/L	-	<10	21	<10	<10	<10	<10
Fluoranthene	US EPA 3510/8270	ug/L	-	<1	23	<1	<1	<1	<1
Fluoranthene	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Fluorene	US EPA 8270/8260	ug/L	-	<10	21	<10	<20	<10	<10
Fluorene	US EPA 3510/8270	ug/L	-	<1	23	<1	<1	<1	<1
Fluorene	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Fluoride	APHA 4500-FC	mg/L	1.5	<0.1	24	0.3	0.9	0.8	0.9
g BHC (Lindane)	US EPA 8270/8260	ug/L	10	<20	21	<20	<20	<20	<20
gamma-BHC	US EPA 3510/8270	ug/L	10	<2	3	<2	<2	<2	<2
Hardness Total	APHA 2340 B	mg/L	-	<0.1	24	32.0	64.0	42.0	62.7
Heptachlor	US EPA 8270/8260	ug/L	0.3	<20	21	<20	<20	<20	<20
Heptachlor	US EPA 3510/8270	ug/L	0.3	<2	3	<2	<2	<2	<2
Heptachlorepoxide	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Heptachlorepoxide	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
Heterotrophic Plate Count	APHA 9215 B	CFU/mL	-	<1	252	<1	220	2	4
Hexachloro 1,3 butadiene	US EPA 8270/8260	ug/L	0.7	<20	21	<20	<20	<20	<20
Hexachlorobutadiene	US EPA 3510/8270	ug/L	0.7	<2	3	<2	<2	<2	<2
Hexachlorobenzene	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
Hexachlorobenzene	US EPA 3510/8270	ug/L	-	<4	3	<4	<4	<4	<4
Hexachlorocyclopentadiene	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
Hexachlorocyclopentadiene	US EPA 3510/8270	ug/L	-	<10	3	<10	<10	<10	<10
Hexachloroethane	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
Hexachloroethane	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Hexachloropropylene	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Indeno(1,2,3,cd)pyrene	US EPA 8270/8260	ug/L	-	<10	21	<10	<10	<10	<10
Indeno(1,2,3,cd)pyrene	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Indeno(1,2,3,cd)pyrene	US EPA 3510/8270	ug/L	-	<1	23	<1	<1	<1	<1
Iodide	ASTM D19	mg/L	0.5	<0.05	12	<0.05	<0.05	<0.05	<0.05
Iron Total	US EPA 200.7	mg/L	-	<0.02	60	<0.02	0.05	<0.02	<0.02
Isophorone	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
Isophorone	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Lead Total	US EPA 200.8	ug/L	10	<0.2	36	<0.2	1.4	0.2	0.6
Lead Total	US EPA 200.8	ug/L	10	<0.2	24	<0.2	0.5	0.2	0.5
Magnesium Dissolved	US EPA 200.7	mg/L	-	<0.05	24	0.58	3.60	1.37	3.47
Malathion	US EPA 8270/8260	ug/L	70	<20	21	<20	<20	<20	<20
Malathion	US EPA 3510/8270	ug/L	70	<2	3	<2	<2	<2	<2
Manganese Total	US EPA 200.8	mg/L	0.5	<0.001	120	0.001	0.076	0.004	0.010
Manganese Total	US EPA 200.8	ug/L	500	<0.5	24	<0.5	77.0	5.8	9.2

Analyte	Method ID	Units	ADWG	Limit of Reporting	Number of Samples	Minimum	Maximum	Mean	95th Percentile
Mercury Total	USEPA 200.8	ug/L	1	<0.1	10	<0.1	0.2	<0.1	<0.1
Methapyrilene	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Molybdenum Total	US EPA 200.8	ug/L	50	<1	24	<1	<1	<1	<1
Monochloroacetic Acid	US EPA SW 846 Method 8260 B	ug/L	-	<1	60	<1	4	1	4
N-2-Fluorenyl Acetamide	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Naphthalene	US EPA 8270/8260	ug/L	-	<10	21	<10	<10	<10	<10
Naphthalene	US EPA 3510/8270	ug/L	-	<1	23	<1	<1	<1	<1
Naphthalene	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Nickel Total	US EPA 200.8	ug/L	20	<1	24	<1	<1	<1	<1
Nitrate	APHA 21st Ed. 2005, Part 4110 B	mg/L	50	<0.1	12	<0.1	0.2	<0.1	0.2
Nitrobenzene	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
Nitrobenzene	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
N-Nitrosodibutylamine	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
N-Nitrosodiethylamine	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
N-Nitrosodimethylamine	US EPA 8270/8260	ug/L	0.1	<20	21	<20	<20	<20	<20
N-Nitrosodi-n-propylamine	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
N-Nitrosodi-n-propylamine	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
N-Nitrosodiphenyl & Diphenylamine	US EPA 3510/8270	ug/L	-	<4	3	<4	<4	<4	<4
N-Nitrosodiphenylamine	US EPA 8270/8260	ug/L	-	<20	21	<20	<20	<20	<20
N-Nitrosomethylethylamine	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
N-Nitrosomorpholine	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
N-Nitrosopiperidine	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
N-Nitrosopyrrolidine	US EPA 3510/8270	ug/L	-	<4	3	<4	<4	<4	<4
Pentachlorobenzene	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Pentachloronitrobenzene	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Pentachlorophenol	US EPA 8270/8260	ug/L	10	<20	21	<20	<20	<20	<20
Pentachlorophenol	US EPA 3510/8270	ug/L	10	<4	3	<4	<4	<4	<4
pH	APHA 4500-H B	pH	-	<0.1	252	7.2	9.0	7.8	8.4
Phenacetin	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Phenanthrene	US EPA 8270/8260	ug/L	-	<10	21	<10	<10	<10	<10
Phenanthrene	US EPA 3510/8270	ug/L	-	<1	23	<1	<1	<1	<1
Phenanthrene	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Phenol	US EPA 8270/8260	ug/L	-	<10	21	<10	<10	<10	<10
Phenol	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Pirimphos-ethyl	US EPA 3510/8270	ug/L	0.5	<2	3	<2	<2	<2	<2
Polycyclic Aromatic Hydrocarbons Total	US EPA 3510/8270	ug/L	-	<0.5	23	<0.5	<0.5	<0.5	<0.5
Potassium Dissolved	US EPA 200.7	mg/L	-	<0.1	12	0.5	1.8	0.8	1.7

Analyte	Method ID	Units	ADWG	Limit of Reporting	Number of Samples	Minimum	Maximum	Mean	95th Percentile
Pronamide	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Prothiofos	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Pyrene	US EPA 8270/8260	ug/L	-	<10	21	<10	<10	<10	<10
Pyrene	US EPA 3510/8270	ug/L	-	<1	23	<1	<1	<1	<1
Pyrene	US EPA 3510/8270	ug/L	-	<2	3	<2	<2	<2	<2
Selenium Total	US EPA 200.8	ug/L	10	<2	24	<2	<2	<2	<2
Silver Total	US EPA 200.8	ug/L	100	<1	24	<1	<1	<1	<1
Sodium Dissolved	US EPA 200.7	mg/L	-	<0.1	12	2.6	7.2	3.7	7.2
Sulphate	APHA 21st Ed. 2005, Part 4110 B	mg/L	500	<0.4	12	0.6	35.0	7.9	34.5
Temperature	APHA 2550 B	deg. C	-	<0.1	120	8.5	26.0	17.2	24.5
Total Coliforms	APHA 9223 B	MPN/100mL	-	<1	252	<1	<1	<1	<1
Total Dissolved Salts	APHA 2540 C	mg/L	-	<20	24	44	140	73	120
Tribromoacetic Acid	US EPA SW 846 Method 8260 B	ug/L	-	<10	60	<10	<10	<10	<10
Trichloroacetic Acid	US EPA SW 846 Method 8260 B	ug/L	100	<1	60	12	65	30	59
Trihalomethanes Total	HP 228-135	ug/L	250	<1	42	10	160	36	91
Trihalomethanes Total	US EPA 5030B/5035/8260B	mg/L	0.25	<0.001	18	0.019	0.060	0.031	0.042
True colour	Lachat QuikChem Method, Color in Waters 10-308-00-1-A	Pt.Co	-	<1	120	<1	3	1	2
Turbidity	APHA 2130 B	NTU	-	<0.1	120	0.1	1.8	0.3	0.6
Zinc Total	US EPA 200.8	ug/L	-	<5	24	<5	42	4	5

ADWG	Australian Drinking Water Guidelines – Health Guideline Value
CFU/mL	colony forming units per millilitre
Deg C	degrees Celsius
ug/L	micrograms per litre
mg/L	milligrams per litre
uS/cm	micro siemens per centimetre
MPN	most probable number
NTU	nephelometric units
Pt-Co	platinum-cobalt units

The 95th percentile is a statistical calculation based on 'normal' distribution. In the context of this report, it estimates the value for which 95% of all the water that passes through the distribution system in this 12 month period falls below.

10. References

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11. Abbreviations

ACTEW	ACTEW Water (a business name used by ACTEW Corporation Ltd)
ACT	Australian Capital Territory
ADWG	Australian Drinking Water Guidelines (2011) also referred to as "the guidelines"
ALS	ALS Global
AS/NZS	Australian Standards/New Zealand Standards
BOIP	Biodiversity Offsets Implementation Program
CFU	colony forming units
DAFF	Dissolved Air Flotation and Filtration
DWCoP/Code	Public Health (Drinking Water) Code of Practice (2007)
ECD	Enlarged Cotter Dam
GL	gigalitre
HACCP	Hazard Analysis and Critical Control Point
ICRC	Independent Competition and Regulatory Commission
ISO	International Standards Organisation
km	kilometre
L	litre
LCC	Lower Cotter Catchment
ML	megalitre
µg	micrograms
µS	micro Siemens
mg	milligram
mL	millilitre
mm	millimetre
mm^3	millimetres cubed
MPN	most probable number
NATA	National Association of Testing Authorities
ND	Non detect
NHMRC	National Health and Medical Research Council
NTU	nephelometric turbidity units

NSW	New South Wales
%	per cent
PAH	polycyclic aromatic hydrocarbons
PAC	Powdered Activated Carbon
PCS	Parks and Conservation Services
Pt-Co	platinum-cobalt units
RCA	Root Cause Analysis
SWPP	Source Water Protection Program
THM	trihalomethanes
UV	ultraviolet light
WSAA	Water Services Association of Australia
WTP	Water Treatment Plant

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