Annual Water Quality Monitoring Report 2025

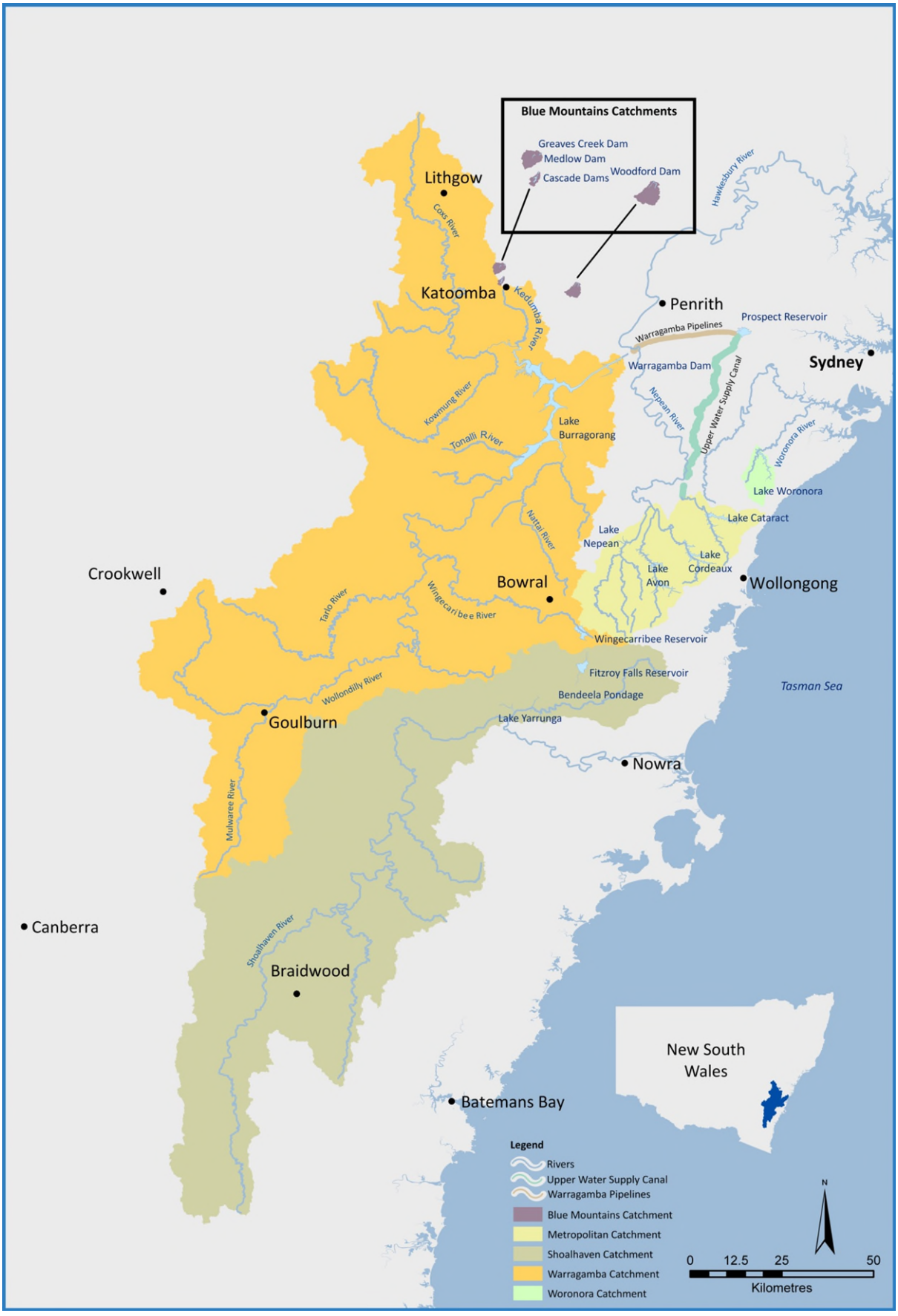

Figure 0.1: Sydney catchment area

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Front Cover: Lake Burragorang. 2025. Copyright WaterNSW.

Executive Summary

WaterNSW's Water Monitoring Program (WMP) for the declared catchment area details the comprehensive monitoring activities covering catchments, lakes, intakes to water filtration plants, picnic areas and downstream river sites. The WMP has been developed in collaboration with NSW Health, Sydney Water and councils. The program incorporates locations, frequency and benchmarks or guideline values for more than 200 water quality characteristics. The WMP includes routine and event monitoring employing field sampling, laboratory testing and telemetered 'real-time' data collection from in-situ instruments. Monitoring provides timely water quality data and information to inform water quality risks, operational decisions and verification of water quality to demonstrate compliance.

This Report describes the results of the water quality monitoring undertaken by WaterNSW during FY25. The Report is prepared to meet WaterNSW's statutory obligations under our Reporting Manual (issued by IPART), which requires us to provide an Annual Water Quality Monitoring Report by 30 November each year, for the preceding financial year.

This Report also supports the implementation of WaterNSW's Water Quality Management System, providing valuable information for the assessment of water quality changes and early identification of potential threats to water quality. This allows WaterNSW to proactively develop mitigation strategies, required for the protection of our water sources and water supplied for treatment.

In addition, we publish this Report, so it also provides stakeholders, students, researchers and the general public with water quality information for waters managed by WaterNSW in the greater Sydney catchment area.

Highlights

The FY25 reporting period commenced with a total storage volume of 97.8% on the 1st July 2024. Minor inflows over the following 10 months resulted in a relatively stable period for water quality, during which gradual improvements were observed across many analytes. The overall storage volume reached a minimum for the reporting period of 93.5% on the 22nd April 2025.

A significant catchment wide rainfall event occurred in May 2025, with most storages in Greater Sydney reaching capacity and spilling. Total storage volume peaked on 25th May 2025 at 99.6%. This rainfall event saw turbid wet weather inflows enter the Greater Sydney storages causing a deterioration of water quality. Despite these significant challenges, through proactive modelling, monitoring and water source selection, WaterNSW continued to deliver the best available source water to our Greater Sydney customers, including Sydney Water, to ensure safety of the water supply was not compromised. Total storage volume ended the reporting period at 97.6% on the 30th June 2025.

Guided by its Water Quality Management System, WaterNSW successfully delivered agreed quantities of high quality water to customers in the declared catchment full compliance with the Australian Drinking Water Guidelines (ADWG) for health-related characteristics.

Water supplied to **water filtration plants** achieved 99.37% compliance with site specific standards in raw water supply agreements. Exceptions included algal ASU (a measure of filter

clogging potential) which is a naturally occurring process, as well as turbidity, pH and true colour which were all related to wet weather inflow events. These issues were highlighted to customers and were managed in accordance with the Water Quality Incident Response Protocol.

WaterNSW continued to manage **picnic area supply** sites in accordance with the Quality Assurance Plans developed in line with NSW Private Water Supply Guidelines. The results from routine monitoring were similar to previous years, with low chlorine residuals in picnic area end taps due to chlorine decay and high residence time in the reticulation system. The efficacy of chlorine disinfection was validated based on chlorine residuals and chlorine contact times achieved at the dosing plant, and the absence of E. coli and indicator bacteria in the supplies. During the reporting period, a detection of E. coli was recorded at Avon picnic area, however, investigation and follow-up sampling did not identify any issues with the water supply.

Water quality in the Greater Sydney **catchments** displayed similar patterns to previous years. Highly protected, natural bushland catchments continue to outperform catchments dominated by agricultural and urban land uses, predominantly for nutrients. Heavy rainfall also had an impact on catchment water quality with the rainfall event in May 2025 causing an increase in ANZECC benchmark exceedances of several key water quality parameters.

Water quality in FY25 achieved
99.37% conformance with Raw Water Supply Agreements and
100% conformance with Australian Drinking Water Guidelines

Monitoring **downstream** of WaterNSW storages is part of the requirements of the Water Licences and Approvals package administered by the Department of Climate Change, Energy, the Environment and Water (DCCEEW) and compliance assured by Natural Resources Access Regulator (NRAR). Similar patterns to FY24 were observed across all downstream of storage sites. In the Nepean River system water quality remains poorer moving downstream due to uncontrolled catchment influences. We endeavour to manage as many catchment influences as possible and these management activities are detailed in our Annual Catchment Management Report.

WaterNSW successfully managed seven major water quality incidents as triggered by and in accordance with our Water Quality Incident Response Protocol, including impacts from wet weather events and algal blooms.

Investigative monitoring was undertaken into PFAS (per- and polyfluoroalkyl substances) concentrations in the Greater Sydney catchment area, with a focus on the Blue Mountains catchment due to the detection of elevated levels of PFAS in Medow Dam and Greaves Creek Dam. All water treated by Sydney Water continued to meet the Australian Drinking Water Guidelines. Another investigation was conducted into novel sampling techniques using the Kedumba River as a trial site. Passive samplers monitoring for metals and a real time in-situ NitraLED sensor monitoring nitrate were trialled, with results from these novel methods compared to more traditional grab sample techniques.

The annual **Macroinvertebrate Monitoring Program** scored 76 routine sites against the AUSRIVAS band grades in 2024. Of the 74 sites monitored in both 2023 and 2024, 9 received a higher AUSRIVAS score in 2024, while 65 recorded lower values. This indicates a decline in macroinvertebrate health across the declared catchment relative to 2023; with 33 sites declining by one or more band grades. Rainfall across the Sydney Drinking Water Catchment during the

2024 Spring AUSRIVAS sampling period was close to the long-term average, so it is not clear whether climatic factors are related to the observed changes in macroinvertebrate health. Further investigation is required to establish whether the decline in macroinvertebrate health observed in 2024 is part of a longer-term trend and identify the key factors driving this change.

Trend analysis was undertaken for selected analytes and sites from 2015 to 2025 to identify long-term changes in water quality after accounting for climatic and hydrodynamic variability. Results show a mix of improving and deteriorating trends across catchments, storages and water filtration plant inlets. Notably, the Warragamba storage sites exhibited consistent deteriorating trends across most analytes, particularly metals, total nitrogen and turbidity. The impact of the 2019 to 2020 bushfires at Lake Burragorang relative to other locations could be a factor in these trends.

1 Water quality monitoring program objectives

WaterNSW is a state-owned corporation whose responsibilities include, inter-alia, supplying water in compliance with appropriate standards of quality as required under Section 6(1)(b) of the Water NSW Act 2014 in the declared catchment area. WaterNSW undertakes extensive monitoring within its catchments, lakes and raw water supply system and in rivers downstream of storages to meet this objective.

WaterNSW's Water Monitoring Program (WMP) sets out the location, frequency and analytes monitored for the catchment area. Specific and health-related characteristics are determined in consultation with our major customers, and the program is developed to the satisfaction of NSW Health. Monitoring for operations and planning helps WaterNSW understand the threats to water quality throughout the supply system, including rivers, lakes and the delivery system. This information aids the selection of the best source water for our customers and the environment.

Data collected through the WMP is used to:

- provide early detection of possible contaminants to protect the health of consumers
- assist in proactive operational decisions
- ensure that the raw water delivered to our customers meets agreed standards and can be treated to meet the Australian Drinking Water Guidelines
- identify and target possible contamination sources in the catchments and storages
- prioritise monitoring to inform water quality risks and remedial actions
- identify emerging water quality issues and address them in forward configurational planning

WaterNSW's compliance monitoring activities and outputs are governed by the following key drivers:

- WaterNSW's Operating Licence and Reporting Manual
- Water Licences and Approvals package granted by the Water Administration Ministerial Corporation (WAMC) and administered by the NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW)
- Raw water supply agreements between WaterNSW and its customers
- Australian Drinking Water Guidelines (ADWG)
- NSW Private Water Supply Guidelines and Public Health Act 2010
- ANZECC benchmarks.

This report describes the results of water quality monitoring undertaken by WaterNSW in the catchment area between 1 July 2024 and 30 June 2025 (FY25) under the WMP. The report is a requirement of the Operating Licence's Reporting Manual. The report also provides the community with information on water quality.

More specifically this report includes:

- a summary of the WMP, including objectives (this section), and applicable guidelines
- a summary of the results of the routine, event and investigative monitoring

- analysis of system performance relative to the criteria where relevant water quality or catchment health benchmarks are available
- quality assurance and quality control information
- summary of water quality incidents and actions taken to resolve, eliminate or mitigate the effect of those incidents, especially to protect public health during the incident.

2 Overview of the Sydney catchment area water supply network

WaterNSW collects water from river catchments to the south and west of Sydney and stores it in lakes and reservoirs to supply more than five million people in the Greater Sydney region.

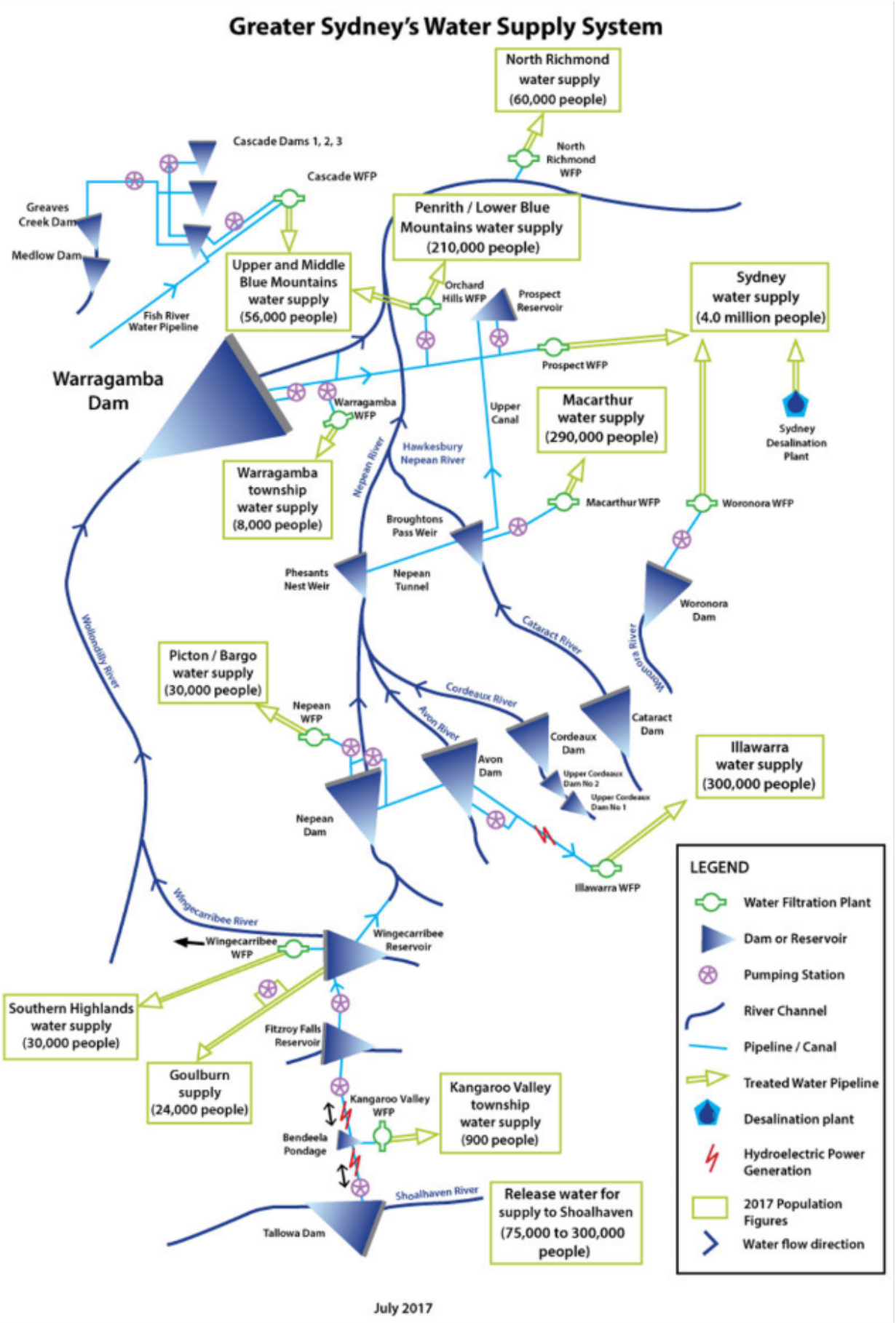
It is transported via a network of rivers, lakes, pipes and canals to water filtration plants, where it is treated for consumers in Sydney, Illawarra, Shoalhaven, Goulburn, Blue Mountains and the Southern Highlands. Water is also released from storages as environmental flows to maintain the health of the downstream river systems.

The catchments cover an area of approximately 16,000 square kilometres, extending from the headwaters of the Coxs River north of Lithgow, south to the source of the Shoalhaven River near Cooma, and from Woronora in the east to the Wollondilly River near Crookwell in the west (Figure 0.1). Raw water is collected from the river systems of five major catchments:

- Warragamba (including Prospect)
- Upper Nepean
- Woronora
- Shoalhaven
- Blue Mountains, including additional flows from the Fish River Water Supply Scheme.

The transfer routes for water around the system and approximate number of people supplied by that part of the system are shown in the water supply system schematic (Figure 2.1).

Figure 2.1: Schematic of the water supply system



3 Sydney catchment area water monitoring program

The Water Monitoring Program (WMP) consists of operational, verification and investigative monitoring. The WMP covers catchments, storages, inlets to water filtration plants, picnic taps, transfer canals and pipelines, as well as rivers downstream of water supply dams and weirs. Monitoring includes physical, chemical, biological, radiological, hydrological and meteorological parameters through on-line instruments, field sampling and laboratory analysis. A key feature of the WMP is an agreed list of water quality characteristics. The list contains:

- those characteristics that cannot be managed by conventional treatment and for which Australian Drinking Water Guidelines (ADWG) must be met; and,
- those characteristics for which ADWG exist but are not applicable to raw water, where WaterNSW must endeavour to supply raw water so that it can be treated to meet the ADWG.

WaterNSW is subject to a range of statutory requirements and standards set by regulatory agencies. WaterNSW is also benchmarked against other raw water suppliers to maintain best practice service standards.

The principal instruments and documents that outline requirements on WaterNSW with respect to water quality monitoring are listed below:

- *Water NSW Act 2014*
- Operating Licence (Part 2), *Water NSW Act 2014* (Division 4)
- Water Licences and Approvals Package under *Water Management Act 2000*
- Memorandum of Understanding between NSW Health and WaterNSW (Parts 5-8)
- Raw Water Supply Agreements
- Water Quality Incident Response Protocol
- Private Water Supply Guidelines and *Public Health Act 2010*
- National Water Quality Management Strategy and National Water Quality Guidelines

The WMP specifies the requirements for water sample collection and analysis. It describes sampling locations and frequencies, and the parameters to be analysed. Additional samples are collected and analysed for quality assurance and quality control (QA/QC) purposes and during events. The QA/QC program provides confidence in the data collected and clarity on the accuracy of that data.

The collection and analysis of routine and QA/QC water samples is performed by WaterNSW monitoring staff and external service providers. A chain of custody system allows individual samples to be tracked from field collection, through laboratory analysis, to the transfer of results to WaterNSW's database. Further details of the QA/QC monitoring for FY25 are included in Section 5.1.

4 Applicable guidelines and benchmarks

WaterNSW has adopted nationally recognised standards and guidelines for a range of water quality characteristics in each part of the water supply network. Different guidelines and standards apply to each part of the supply cycle as water passes from catchment waterways into lakes and then into the delivery network or downstream rivers.

4.1 Australian Drinking Water Guidelines (ADWG)

The Australian Drinking Water Guidelines (NHMRC, 2011 and later revisions) apply to any water intended for drinking, irrespective of the source or where it is consumed. The ADWG framework for managing drinking water quality advocates risk management and preventive measures at all barriers from catchment to consumer. This is referred to as the multi-barrier approach.

For water quality characteristics that have been specified as 'health related', including metals, pesticides and synthetic organic compounds (Table 4.1a-b), raw water must conform to the ADWG. As conventional water treatment methods are not designed to remove these compounds from raw water, it is preferable to avoid them in the raw water supply through catchment and storage management practices. Drinking water supply at picnic areas is managed in accordance with the ADWG.

Routine monitoring of radionuclides is performed at water filtration plants by screening for gross alpha and gross beta activity concentrations. Testing for individual radionuclides is performed in the case of a positive gross alpha or gross beta result. Gross alpha and gross beta screening is now carried out three-yearly in accordance with ADWG. Gross alpha and gross beta analysis was conducted in March 2025, with results below the ADWG screening value of 0.5 Bq/L for all sites, meaning no further action was required. Results are included in Appendix A.

4.2 Raw water supply agreements

WaterNSW has established terms and conditions of supply with wholesale customers to ensure treated water is not harmful to consumers' health. In the geographic scope of this Report, WaterNSW maintains raw water supply agreements with Sydney Water, Wingecarribee Shire Council, Goulburn Mulwaree Council and Shoalhaven City Council. Raw water supplied for treatment is required to conform to site-specific standards specified in raw water supply agreements (Table 4.3). These standards are based on the treatment capabilities of the customers' water treatment/filtration plants and the natural characteristics of the catchment. This ensures that raw water can be treated to meet ADWG requirements.

Table 4.1a: Health-related water quality characteristics: Synthetic Organics, Radiological and Pesticide Characteristics

	SPECIFIC WATER CHARACTERISTIC	DRIVER	ADWG (2011) Health Guideline
SYNTHETIC ORGANICS - RADIOLOGICAL - PESTICIDES	**Synthetic Organic Compounds**	Operating Licence[1]	
	Benzene		0.001 mg/L
	Vinyl chloride		0.0003 mg/L
	Pesticides		
	2,4-D (2,4-Dichlorophenoxyacetic acid)		0.03 mg/L
	Atrazine		0.02 mg/L
	Chlorfenvinphos		0.002 mg/L
	Chlorpyrifos		0.01 mg/L
	Diuron		0.02 mg/L
	Flupropanate		0.009 mg/L
	Glyphosate		1.0 mg/L
	Hexazinone		0.4 mg/L
	MCPA (2-methyl-4-clorophenoxyacetic acid)		0.04 mg/L
	Picloram		0.3 mg/L
	Simazine		0.02 mg/L
	Triclopyr		0.02 mg/L
	Radiological	ADWG recommends screening level test for radiological parameters	
	Gross alpha		0.5 Bq/L
	Gross beta		0.5 Bq/L

1 Section shaded yellow contains health related water quality characteristics. These characteristics must not exceed Australian Drinking Water Guidelines (NHMRC, 2011) in raw water supplied as treatment may not remove them. Minimising these in raw water effectively minimises risk to consumers.

Table 4.2b: Health-related and aesthetic Water Quality Characteristics: (Physical, Chemical, Biological and Organic)

	SPECIFIC WATER CHARACTERISTIC	DRIVER	Guideline
PHYSICAL - CHEMICAL - BIOLOGICAL - ORGANIC	Arsenic Barium Beryllium Boron Iodide Manganese Mercury Molybdenum Selenium Silver Tin	ADWG (2011)[1] Health Guideline	0.01mg/L 2 mg/L 0.06mg/L 4 mg/L 0.5 mg/L 0.5 mg/L *(0.1 mg/L from 25/6/2026)* 0.001 mg/L 0.05 mg/L 0.01 mg/L *(0.004 mg/L from 25/6/2026)* 0.1 mg/L N/A
	Antimony Cadmium Chromium (Cr^{VI}) Copper Fluoride Lead Nickel Nitrate Nitrite	ADWG (2011)[2] Health Guideline (NSW Private Water Supply Guidelines, 2016)	0.003 mg/L 0.002 mg/L 0.05 mg/L 2 mg/L 1.5 mg/L 0.01 mg/L *(0.005 mg/L from 25/6/2026)* 0.02 mg/L 50 mg/L 3 mg/L
	E. coli Enterococci *C. perfringens* *Cryptosporidium* *Giardia* Toxin producing cyanobacteria Cyanobacterial toxins Total cyanobacteria biovolume	ADWG (2011) Operating Licence[3]	Seek advice from NSW Health
	Algae (ASU) Alkalinity Aluminium Hardness Iron Manganese Odour pH True colour Turbidity	Water Supply Agreements	Refer to Water Supply Agreements
	Total cyanobacteria biovolume Total toxin producing cyanobacteria Cyanobacterial toxins Enterococci	Water Licences and Approvals Package (WLAP)[4]	Refer to *Guidelines for Managing Risks in Recreational Water* (NHMRC 2008)

1 Section shaded **yellow** contains health related water quality characteristics – these characteristics must not exceed Australian Drinking Water Guidelines (NHMRC, 2011) in treated waters or in raw water supplied as treatment may not remove them. Minimising these in raw water effectively minimises risk to consumers.

2 Section shaded **orange** contains health related water quality characteristics for private water supplies – these characteristics must not exceed Australian Drinking Water Guidelines (NHMRC, 2011) in treated waters.

3 Section shaded **blue** contains characteristics for which drinking water guidelines exist but these are not applicable for raw water. However, WaterNSW must endeavour to supply the best quality raw water available so that it can be treated to meet Australian Drinking Water Guidelines.

4 Section shaded **green** contains characteristics which apply for recreational waters and releases.

Table 4.3: Raw water supply agreements – Site specific standards

		Turbidity	True Colour @400 nm	Iron	Manganese	Aluminium	Hardness	Alkalinity	pH	Odour	Algae
		NTU	CU	mg/L	mg/L	mg/L	mg/L as CaCO3	mg/L as CaCO3	pH units	Rating	ASU
Prospect WFP		40	60	3.50	1.40	2.6	25 – 70	15 - 60	NA	NA	1000[i]
Warragamba WFP											2000
Orchard Hills WFP											
Macarthur WFP Based on Demand (ML/day)	185 - <265	10	40	0.60	0.20	0.40	6 – 30	15			100[ii]
	125 - <185	25		0.80	0.25	0.50	6 – 32.20				
	80 - <125	50		1.10	0.30	0.75					500[ii]
	<80	60		1.30	0.35	0.95					
Illawarra WFP		10	50	1.1	0.4	1.4	30	10		Not objectionable	5000
Woronora WFP			70	1	0.1	0.4	2 – 30	15			
Nepean WFP		150	60	5.0	1.5	1.0	2 – 35	0.5 – 25		NA	2000
Cascade WFP		15		3.0	0.3	0.2	40	30			
Kangaroo Valley WFP		20	70	1.1	0.4	NA	36.5	29	6.5 – 8.5		5000
Wingecarribee WFP		40			NA			35			
Goulburn Mulwaree											

(i) Maximum for Prospect WFP is 1000 ASU, except if turbidity is greater than 10 NTU or true colour is greater than 30 CU, then the algae maximum will be 500 ASU.

(ii) Algal limits for Macarthur WFP (average of 3 samples): 500 ASU small individual cells (<10 µm) of filamentous or colonial species, typically *Chlorella*, *Dolichospermum*, *Monodus* and *Melosira*; or 100 ASU large (>10 µm) cells, branching species, and/or gelatinous species, typically *Asterionella*, *Taballaria, Fragillaria, Synedra, Cyclotella, Dinobryan, Elakatothrix*, and *Volvox*.

(iii) Upper limits are shown for analytes where ranges are not provided.

4.3 ANZECC 2018

The Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2018) (ANZECC, 2018) provide a guide for setting water quality objectives required to sustain current or likely future environmental values for natural and semi-natural water resources in Australia and New Zealand. Water quality in WaterNSW Sydney catchment area waterways is compared against relevant sections of the ANZECC Guidelines.

Benchmarks for storages

Benchmarks for storages are derived from the guidelines for freshwater lakes and reservoirs (ANZECC, 2018) for the 95-99 percent level of species protection (Table 4.4). Site specific benchmarks are to be developed for temperature and conductivity, and as such are not included in the table below.

Table 4.4: Water quality benchmarks for storages

Analyte	Units	Benchmark range
pH	pH units	6.5 - 8.0
Chlorophyll *a*	µg/L	< 5
Dissolved oxygen	% sat	90 – 110
Total nitrogen	mg/L	< 0.35
Oxidised nitrogen	mg/L	< 0.01
Ammoniacal nitrogen	mg/L	< 0.01
Total phosphorus	mg/L	< 0.01
Filterable reactive phosphorus	mg/L	< 0.005
Turbidity	NTU	< 20.0
Total manganese	mg/L	< 1.9
Total aluminium	mg/L	< 0.055

Benchmarks for catchments

WaterNSW benchmarks water quality in metropolitan catchment streams against the ANZECC (2018) guideline ranges for upland rivers (Table 4.5).

Table 4.5: Water quality benchmarks for catchment streams

Analyte	Units	Benchmark range
pH	pH units	6.5 – 8.0
Chlorophyll *a*	µg/L	< 5
Dissolved oxygen	% sat	90 – 110
Total nitrogen	mg/L	< 0.25
Ammoniacal nitrogen	mg/L	< 0.013
Oxidised nitrogen	mg/L	< 0.015
Total phosphorus	mg/L	< 0.02
Filterable reactive phosphorus	mg/L	< 0.015
Turbidity	NTU	< 25
Total aluminium	mg/L	< 0.055
Total manganese	mg/L	< 1.9
Conductivity	mS/cm	< 0.35

4.4 Benchmarks for recreational areas

To minimise risks to public health, WaterNSW manages recreational exposure risk by benchmarking water quality against the Guidelines for Managing Risks in Recreational Waters (NHMRC, 2008) (Table 4.5).

Table 4.6: Water quality benchmarks for recreation areas

Analyte	Units	Primary Contact		Secondary Contact
		Minor Alert Threshold	Major Alert Threshold	Alert Threshold
Enterococci	cfu/100mL	40	200	200
Microcystis aeruginosa	cells/mL	5,000	50,000	50,000
Toxic cyanobacteria biovolume	mm^3/L	0.4	4	4
Total cyanobacteria biovolume	mm^3/L	-	10	10
Algal toxins (microcystin variants)	µg/L	NA	10	10

4.5 Benchmarks for downstream rivers

Benchmarks for water quality downstream of WaterNSW's dams and weirs are derived from ANZECC (2018) lowland rivers ecosystem types (Table 4.6).

Table 4.7: Water quality benchmarks downstream of storages

Analyte	Units	Benchmark range
pH	pH units	6.5 - 8.5
Chlorophyll *a*	µg/L	< 5
Dissolved oxygen	% sat	85 – 110
Total nitrogen	mg/L	< 0.5
Total phosphorus	mg/L	< 0.05
Turbidity	NTU	< 50

4.6 Benchmarks for picnic area supplies

Benchmarks for the picnic area supplies are based on ADWG (2011) threshold ranges, where relevant (**Error! Reference source not found.**7). Some benchmarks are prompts for action, such as chlorophyll a, which triggers algal monitoring in the picnic area supply.

Table 4.8: Water quality guidelines for specific parameters at picnic areas

Analyte	Units	Threshold
Free chlorine residual	mg/L	> 0.5
pH	pH units	6.5 - 8.5
Turbidity	NTU	< 3
Total iron	mg/L	< 0.3
Total aluminium	mg/L	< 0.2
Total manganese	mg/L	< 0.1 *<0.05 from 25/06/2025*
Total coliforms	orgs/100 mL	NA
E. coli	orgs/100 mL	Should not be detected
Algal toxins (microcystin variants)	µg/L	< 1.3
Chlorophyll *a*	µg/L	< 5
Potentially toxin producing algal cells	cells/mL	< 6,500(i)

(i) See cyanobacteria benchmarks in Table 4.8

4.7 Benchmarks for cyanobacteria

WaterNSW routinely monitors levels of algae in major storages to provide early warning of possible bloom conditions and to ensure that raw water supplied to customers can be treated to meet drinking water guidelines. Algal monitoring is also conducted to avoid contaminating downstream waterways through environmental releases or transfers.

While the ADWG stipulate cyanobacteria guidelines and alert levels for drinking water, WaterNSW applies those guidelines to the raw water supplied for treatment in Greater Sydney. At Lake Yarrunga and Fitzroy Falls Reservoir, the only WaterNSW storages in the Sydney catchment area with recreational access, the National Health and Medical Research Council Recreational Waters Guidelines (NHMRC, 2008) for catchments and lakes are applied (**Error! Reference source not found.**8). The raw water and picnic areas benchmarks are from the ADWG.

Table 4.9: Cyanobacteria benchmarks throughout Sydney catchment area

Analyte		Units	Threshold
Catchment and lake sites[(i)]			
Cells	*Microcystis aeruginosa*	cells/mL	50,000
Toxicity	Microcystin variants	µg/L	10
Biovolume	Total cyanobacteria	mm^3/L	4
Raw water and picnic area water supplies[(ii)]			
Cells	*Microcystis aeruginosa*	cells/mL	6,500
	Raphidiopsis raciborskii	cells/mL	15,000
	Dolichospermum circinale	cells/mL	20,000
Toxicity	Microcystin variants	µg/L	1.3
	Cylindrospermopsin	µg/L	1.0
	Saxitoxin	µg/L	3.0
Biovolume	Potentially microcystin-producing species	mm^3/L	0.6
	Potentially cylindrospermopsin-producing species	mm^3/L	0.6
	Potentially saxitoxin-producing species	mm^3/L	5

(i) National Health and Medical Research Council Guidelines for Managing Risks in Recreational Water 2008.

(ii) These triggers are based on cell counts, toxin concentration and biovolume ADWG 2011 specify actions in response to various alert level ranges for *Microcystis aeruginosa, Dolichospermum circinale* and *Raphidiopsis raciborskii*, and the consolidated biovolumes of the species known to produce microcystin, saxitoxins and cylindrospermopsin toxins.

4.8 Benchmarks for Cryptosporidium and Giardia

The ADWG do not contain guideline values for Cryptosporidium and Giardia in raw or treated drinking water. However, ADWG (2011) recommends a multi-barrier approach to minimise the risks of these pathogens. Investigative testing is encouraged in response to events that could increase the risk of contamination. WaterNSW implements additional monitoring during high-risk events. Cryptosporidium and Giardia monitoring in the catchments is undertaken to provide early warning to enable optimal configuration of the raw water supply system in the event of high concentrations of protozoan pathogens within the storages. Catchment monitoring also contributes to the understanding of sources which can then improve the robustness of risk assessments and catchment actions.

5 Routine monitoring

Water quality monitoring was conducted as per the Water Monitoring Program. Samples were collected from catchment streams, lakes and delivery sites and analysed by National Association of Testing Authorities (NATA) accredited laboratories. Online instruments were used to supplement this monitoring. This report summarises the results of routine monitoring compared against appropriate guidelines or benchmarks.

Data from routine samples was extracted from the WaterNSW water quality database. Routine data was compared to the relevant guideline, standards and benchmark value for each analyte. The number of guideline exceedances was calculated as a percentage of the total compliance samples taken in the reporting year. The appendices provide summary statistics for all samples collected on each routine sampling occasion.

Compliance was 100% with the ADWG and 99.37% with Raw Water Supply Agreements. Overall, the water quality monitoring of the reservoirs in the declared catchment areas indicated good water quality, apart from occasional impacts primarily associated with algal blooms and an April 2025 inflow event in Lake Yarrunga. Raw water quality supplied for treatment is optimised by adjusting the supply system configuration (e.g., offtake depth changes and source selection) and working with customers to reduce challenges in treating the water.

5.1 Quality Assurance and Quality Control

The WaterNSW quality assurance and quality control (QA/QC) program ensures the sampling and analysis process is accurate and representative. Specific QA/QC samples are collected and analysed to provide confidence that errors are controlled in the sampling and analysis process. Field collected QA/QC samples include field duplicates and field blanks. Trip blanks are also prepared at the laboratory and taken on designated sampling trips. In FY25, 2.4% of the number of routine samples were taken for QA/QC purposes to ensure the validity and accuracy of the WaterNSW's water quality data. This was above the effort on QA/QC recommended by ISO 5667 at 2% of routine samples.

In addition to WaterNSW QA/QC samples, WaterNSW's analytical service providers have management systems that require them to maintain their own internal QA/QC program. These systems are accredited with the NATA and aligns with ISO17025. The analytical service providers conduct internal quality control analysis per each batch of samples including matrix spikes, internal and inter-laboratory duplicates, blanks, replicate analysis and inter-laboratory proficiency trials. The service provider QA/QC specialists analyse conformance with specified standards of accuracy and precision defined by WaterNSW to identify any contamination, outliers or errors (either random or systemic).

Trip blanks

A total of 29 trip blanks were taken in FY25 across the greater Sydney catchment area. Positive low level detections were recorded in nine of these samples. Eight of the nine positive samples were collected prior to August 2024, where a QAQC investigation from FY24 resulted in improvements in the quality of water used for trip blanks. Since the change in water, only one trip blank in February 2025 showed a positive detection for both dissolved and total organic carbon. Subsequent trip blanks met performance specifications and this result was considered anomalous and warranted no further investigation.

Field blanks

Field blanks accounted for 65 samples in FY25. Of these, 19 samples had a positive detection with 30 analyses being positive. Assessment of sampling location for positive detections showed no discernible trend with 8 of the 19 samples collected from river locations, 3 samples collected from lake samples and the other 8 from delivery locations. No geographical association was also made with the respective sampling teams with positive results being evenly distributed amongst the 3 teams.

Turbidity (7 samples) dissolved organic carbon (6 samples), total organic carbon and ammoniacal nitrogen (4 samples) were the most frequently detected analytes in field duplicates. Detections were also observed for total iron (2 samples), Lorenzen (1 sample), total manganese (1 sample), total nitrogen (3 samples), oxidised nitrogen (1 sample), total phosphorus (1 sample) and reactive silica (1 sample). Metal and turbidity detections were typically at delivery locations, nutrient and biological detections were typically at catchment locations and organic carbon detections were randomly distributed. These detections may be attributable to contamination at the sampling location given the nature of the analytes and this has been noted as an improvement opportunity for the sampling teams.

Duplicates

WaterNSW has applied the Relative Percent Deviation (RPD) to routine and duplicate samples. Where the RPD is greater than 50% the two sample results are considered anomalous and discussed below. Sample results with detections of less than 10x the Limit of Reporting (LOR) are excluded due to the innate variability of results at low concentrations. Biological results such as bacteria or algae are included although it is noted that there is typically a high degree of variability between routine and duplicate samples.

During FY25, 112 duplicate samples were collected across the greater Sydney catchment. A total of 18 analyses identified anomalies when applying the above criteria. These included aluminium (4 samples), total coliforms (2 samples), organic carbon (2 samples), E. coli (1 sample), Enterococci (1 sample), ferrous iron (1 sample), Lorenzen (3 samples), manganese (1 sample), ammoniacal nitrogen (2 samples) and suspended solids (1 sample). No sampling event failed two analyses during sampling, all anomalies were individual non-conformances for the sampling event. These non-conformances have been attributed to a lack of sample homogeneity when splitting samples and have been referred to the water monitoring teams as part of continuous improvement.

True Colour Investigation

In October of 2024, internal data review suggested that while true colour results were meeting stated QA/QC objectives, there was a possible bias in the data that suggested an over estimation of results. An investigation was initiated involving the WaterNSW contracted laboratories and key external stakeholders which found a systemic bias where the cause was found to be an under reporting in calibration which in turn led to results being reported higher than expected. Of note is that due to the low to middle dynamic range of these results, they did meet the laboratories' NATA accreditation.

Further review of the data showed that the issue had started in May 2024 and continued through to the 13th of November 2024 where WaterNSW and the laboratory agreed to apply new performance standards to results. There were 4700 data points that were impacted to varying degrees during this period. WaterNSW worked with the laboratory to develop a correction based on expected vs measured absorption for the calibration curve for each batch run during this period which in turn was retrospectively applied to the impacted data just beyond the reporting period for this report. This issue, results of the investigation and corrected data was communicated to stakeholders during this period. Data reported in this report has been corrected and the new performance standards for the method remain in place for this analysis.

5.2 Warragamba system

Sampling sites in the Warragamba system (including Prospect Reservoir) are shown in Figure 5.1 below.

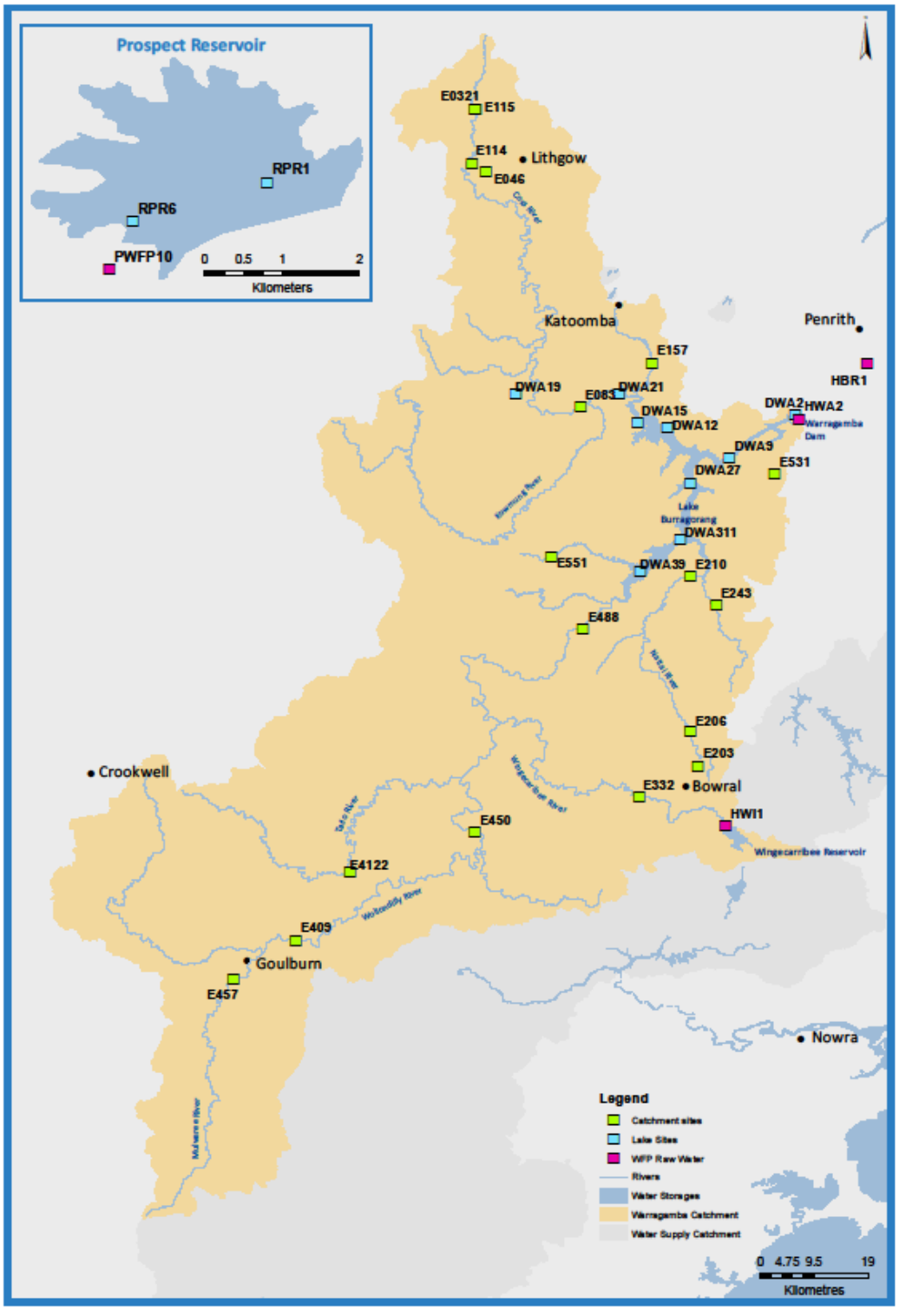


Figure 5.1: Sampling sites in the Warragamba system (Prospect Reservoir inset)

Table 5.1: Warragamba system catchments - percentage of routine samples outside benchmarks

Site	Station Code	Physico-Chemical							Nutrients					Metals			Cyanobacteria	
		Total Alkalinity as CaCO3 (mg/L)	Conductivity @25 C - Field (mS/cm)	Dissolved Oxygen - Field (%Sat)	pH - Field	Total Hardness as CaCO3 (mg/L)	True Colour at 400nm (PES filter)	Turbidity - Field (NTU)	Nitrogen Ammoniacal (mg/L)	Nitrogen Oxidised (mg/L)	Nitrogen Total (mg/L)	Phosphorus Soluble Reactive (mg/L)	Phosphorus Total (mg/L)	Aluminium Total (mg/L)	Iron Total (mg/L)	Manganese Total (mg/L)	Areal Standard Unit (algae)	Chlorophyll-a (ug/L)
Catchments (ANZECC guidelines refer Table 4.4, where there is no applicable benchmark the cells are greyed out).																		
D/S Lake Lyell	E0114		0%	58%	0%			0%	33%	100%	100%	0%	17%	17%		0%		8%
U/S Lake Lyell	E0115		83%	0%	58%			0%	67%	33%	75%	0%	25%	25%		0%		8%
Coxs R. at Lithgow (next to the Power Station)	E0321		92%	42%	42%			0%	58%	50%	75%	0%	67%	92%		0%		0%
Farmers Ck Mt Walker	E046		0%	33%	25%			0%	42%	100%	100%	0%	83%	67%		0%		33%
Coxs at Glenroy Br	E073		9%	0%	45%			0%	64%	73%	91%	0%	27%	27%		0%		9%
Coxs River @ Kelpie Point	E083		8%	0%	25%			0%	0%	50%	0%	0%	0%	25%		0%		0%
Kowmung River @ Cedar Ford	E130		8%	8%	0%			0%	17%	75%	8%	0%	0%	42%		0%		0%
Kedumba River@ Maxwells Crossing	E157		0%	18%	0%			0%	9%	100%	73%	0%	0%	36%		0%		0%
Gibbergunyah Ck 400m d/s of Mittagong STP Disch.	E203		8%	33%	0%			8%	92%	100%	100%	0%	75%	83%		0%		0%
Nattai River @ The Crags	E206		0%	17%	8%			0%	25%	100%	100%	0%	17%	42%		0%		8%
Nattai Ck @ Smallwoods Crossing	E210		25%	8%	0%			0%	33%	100%	50%	0%	0%	67%		0%		0%
Little River @ Fireroad W4I	E243		0%	0%	0%			0%	0%	58%	0%	8%	8%	8%		0%		0%
Mittagong Creek downstream WPCP Bowral	E306		25%	100%	0%			25%	92%	92%	100%	0%	100%	100%		0%		33%
Whites Ck 350m d/s of Moss Vale STP disch	E3151		100%	100%	0%			0%	92%	100%	100%	100%	100%	100%		0%		50%
Wingecarribee River @ Berrima	E332		0%	58%	8%			17%	75%	92%	100%	0%	100%	100%		0%		100%
Wollondilly River @ Murrays Flat	E409		100%	75%	17%			0%	100%	58%	100%	17%	83%	100%		0%		92%
Wollondilly at Upper Tarlo	E4122		100%	75%	17%			8%	92%	58%	100%	0%	42%	92%		0%		33%
Wollondilly River at ford 1km u/s Paddys River	E433		8%	83%	8%			0%	83%	50%	100%	0%	50%	83%		0%		42%
Wollondilly River @ Golden Valley	E450		83%	17%	33%			0%	83%	75%	100%	0%	92%	100%		0%		92%
Mulwaree River @ Towers Weir	E457		100%	83%	33%			0%	67%	58%	100%	67%	100%	42%		0%		92%
Wollondilly River @ Jooriland	E488		75%	17%	58%			0%	8%	58%	100%	0%	25%	83%		0%		17%
Wollondilly River @ u/s Goul Rossi Weir	E490		92%	75%	33%			8%	92%	33%	100%	0%	75%	75%		0%		67%
Werriberri Ck @ Werombi	E531		42%	83%	0%			0%	50%	42%	33%	0%	0%	58%		0%		17%
Tonalli R. @ Fire Road W2 (Site No.2)	E551		58%	50%	8%			0%	8%	83%	0%	0%	0%	0%		0%		0%

Site	Station Code	Physico-Chemical							Nutrients					Metals			Cyanobacteria	
		Total Alkalinity as CaCO3 (mg/L)	Conductivity @25 C - Field (mS/cm)	Dissolved Oxygen - Field (%Sat)	pH - Field	Total Hardness as CaCO3 (mg/L)	True Colour at 400nm (PES filter)	Turbidity - Field (NTU)	Nitrogen Ammoniacal (mg/L)	Nitrogen Oxidised (mg/L)	Nitrogen Total (mg/L)	Phosphorus Soluble Reactive (mg/L)	Phosphorus Total (mg/L)	Aluminium Total (mg/L)	Iron Total (mg/L)	Manganese Total (mg/L)	Areal Standard Unit (algae)	Chlorophyll-a (ug/L)
Storages (ANZECC guidelines refer Table 4.3, where there is no applicable benchmark the cells are greyed out).																		
Lake Burragorang Coxs R. arm 24km U/S of dam wall	DWA12			38%	35%			0%	38%	100%	77%	4%	46%	46%		0%		4%
Lake Burragorang Coxs R. arm 4km U/S Butchers Ck	DWA15			50%	33%			0%	17%	83%	67%	0%	50%	50%		0%		33%
Lake Burragorang Kedumba R. 36km U/S of dam wall	DWA19			67%	33%			0%	17%	50%	17%	0%	33%	17%		0%		83%
Lake Burragorang 500m U/S of dam wall	DWA2			31%	31%			0%	31%	100%	96%	0%	38%	46%		0%		27%
Lake Burragorang Coxs R. arm 37km U/S of dam wall	DWA21			67%	17%			0%	17%	50%	17%	0%	33%	17%		0%		67%
Lake Burragorang Wollondilly R. arm 23km U/S of dam wall	DWA27			38%	42%			0%	12%	100%	85%	4%	42%	42%		0%		23%
Lake Burragorang Wollondilly R. arm 300m U/S of Nattai R.	DWA311			33%	33%			0%	33%	100%	67%	0%	50%	50%		0%		17%
Lake Burragorang Wollondilly R. arm 40km U/S dam wall	DWA39			50%	33%			0%	50%	83%	83%	0%	33%	67%		0%		50%
Lake Burragorang 14km U/S of dam wall	DWA9			38%	12%			0%	23%	100%	92%	0%	35%	42%		0%		19%
Prospect Reservoir @ Midlake	RPR1			0%	8%			0%	58%	92%	8%	0%	25%	92%		0%		50%
Prospect Reservoir @ Inlet to RWPS	RPR6			0%	17%			0%	67%	83%	0%	0%	0%	100%		0%		33%
Raw Water (raw water supply agreement site specific standards refer Table 4.2, where there is no applicable benchmark the cells are greyed out).																		
Orchard Hills WFP raw water	HBR1	0%				0%	0%	0%						0%	0%	0%	0%	
Warragamba WFP raw water	HWA2	0%				0%	0%	0%						0%	0%	0%	0%	
Prospect WFP Inlet - Channel 2, 2nd dosing bridge	PWFP10	0%				0%	0%	0%						0%	0%	0%	0%	

5.2.1 Catchments

Water quality in Lake Burragorang's river catchments in FY25 was influenced by a wetter than average annual hydrological cycle. The first half of the reporting year had eight minor to moderate inflow events leading to varying levels of export into the reservoir pending the timing between each event and the opportunity for additional catchment loadings. Another five (5) minor to moderate events were seen in the second half of the reporting year until a major event in June 2025. Catchments dominated by agricultural and urban land uses regularly exceeded ANZECC benchmarks irrespective of the size of the event whereas only the larger event in June caused more undeveloped catchments to exceed guidelines.

Water monitoring sites in the upstream parts of all the catchments frequently exceed benchmarks, particularly for nitrogen and aluminium irrespective of hydrology. Nitrogen and aluminium continued to be elevated throughout the catchment streams in both of the major arms of the lake. Aluminium exceedances are to be expected given the predominance of sandstone throughout the declared catchment. Dissolved oxygen, nitrogen and phosphorus exceedances were most notable in rivers where urbanisation, intensive agriculture and sewerage treatment plants operate. Conductivity exceedances were reduced over previous years due to the hydrologically active season limiting inputs from ground water sources.

Highly protected natural catchments such as the Kowmung and Tonalli Rivers performed better for most parameters when compared to drainage units from more developed catchments. These sites did show some level of exceedances for nitrogen and in particular oxidised nitrogen. Berrima weir and the Coxs River upstream of Lake Lyell continues to show significant water quality influences from urbanisation. Notable improvements in water quality performance in the Coxs and Wollondilly Rivers are apparent once the river enters protected areas within the scheduled areas.

5.2.2 Storages

Lake Burragorang showed a high level of exceedance for oxidised nitrogen. This is despite slight reductions in total nitrogen and aluminium exceedances from previous years. This reflects recuring inflows into the storage with major events limited to only the event in June and instream transport representing a higher proportion of contaminants than direct export from land use. The size of Lake Burragorang also lends itself towards variance in performance. Smaller inflows generally impact the outer parts of the storage and circulation spreads inflow water quality through the storage over time. Larger inflows have the potential to impact the majority of the lake in a short time frame. Due to the aforementioned hydrology over the reporting period, performance is generally better the further the monitoring location is from inflow locations.

Chlorophyll-α exceedances continue to be directly related to the proximity to inflow locations where the closer to the Dam Wall the site is, the lower the frequency of exceedance. No significant algal growth to the level of a phytoplankton bloom was observed in FY25.

Water quality in Prospect Reservoir is usually related to water quality in Lake Burragorang as inter basin transfers represent the majority of inflow. Similarly to Lake Burragorang, a significant number of exceedances for nitrogen and aluminium were observed. Water quality was of generally good quality and posed few challenges for treatment to the Prospect Water Filtration Plant.

5.2.3 Water Filtration Plants

Water supplied for filtration remained of high quality throughout the period with no exceedances recorded at Prospect, Orchard Hills or Warragamba WFPs. All results met targets as defined within the Raw Water Supply Agreement.

5.3 Upper Nepean system

Sampling sites in the Upper Nepean system are shown in Figure 5.2 below.

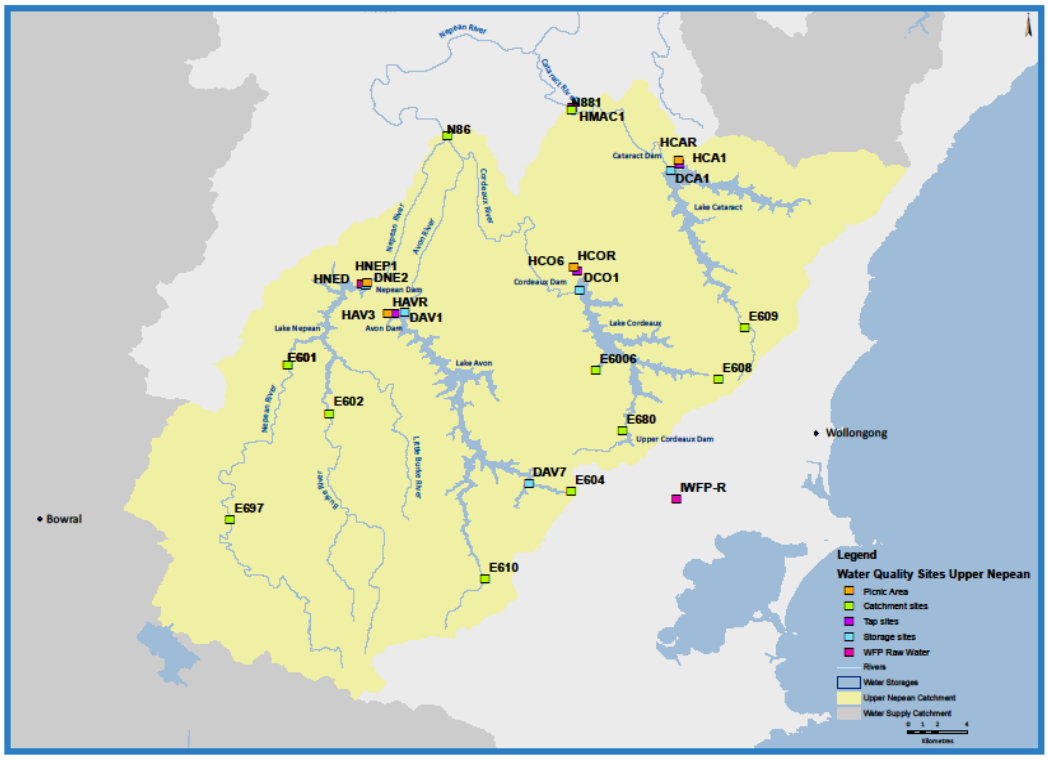


Figure 5.2: Sampling sites in the Upper Nepean system.

Table 5.2: Upper Nepean catchments - percentage of routine samples outside benchmarks

Site	Station Code	Physico-Chemical							Nutrients					Metals			Cyanobacteria	
		Total Alkalinity as CaCO3 (mg/L)	Conductivity @25 C - Field (mS/cm)	Dissolved Oxygen - Field (%Sat)	pH - Field	Total Hardness as CaCO3 (mg/L)	True Colour at 400nm (PES filter)	Turbidity - Field (NTU)	Nitrogen Ammoniacal (mg/L)	Nitrogen Oxidised (mg/L)	Nitrogen Total (mg/L)	Phosphorus Soluble Reactive (mg/L)	Phosphorus Total (mg/L)	Aluminium Total (mg/L)	Iron Total (mg/L)	Manganese Total (mg/L)	Areal Standard Unit (algae)	Chlorophyll-a (ug/L)
Catchments (ANZECC guidelines refer Table 4.4, where there is no applicable benchmark the cells are greyed out).																		
Sandy Ck inflow	E6006		0%	58%	100%			0%	8%	8%	0%	0%	67%	58%		0%		0%
Nepean River @ Inflow to Lake Nepean	E601		0%	8%	8%			0%	8%	100%	75%	0%	8%	92%		0%		0%
Burke River @ inflow to Lake Nepean	E602		0%	0%	33%			0%	8%	8%	0%	0%	0%	67%		0%		0%
Little Burke R. @ Nepean Dam Inflow	E603		0%	33%	100%			0%	8%	0%	0%	0%	0%	33%		0%		0%
Flying Fox Ck. No 3	E604		0%	50%	0%			0%	0%	100%	33%	0%	0%	8%		0%		8%
Goondarrin Creek @ Kemira 'D' cast	E608		0%	58%	0%			0%	8%	100%	0%	0%	0%	100%		0%		0%
Cataract River downstream Angels Creek	E609		0%	100%	75%			0%	83%	100%	0%	0%	0%	100%		0%		0%
Avon River - Summit Tank	E610		0%	33%	8%			0%	8%	0%	0%	0%	0%	42%		0%		0%
Loddon R. Inflow	E676		0%	17%	100%			0%	25%	0%	0%	0%	0%	100%		0%		0%
Cordeaux River at causeway between U.cord. 1 & 2	E680		0%	33%	8%			0%	67%	58%	8%	0%	17%	25%		0%		17%
Nepean River @ AT McGuire's Crossing	E697		0%	33%	0%			0%	50%	100%	100%	0%	42%	92%		0%		0%
Storages (ANZECC guidelines refer Table 4.3, where there is no applicable benchmark the cells are greyed out).																		
Lake Avon @ 45m U/S dam wall	DAV1			33%	83%			0%	50%	83%	0%	0%	0%	25%		0%		0%
Lake Avon @ 3 km D/S Gallahers Ck Jn	DAV16			33%	50%			0%	42%	58%	0%	0%	0%	17%		0%		0%
Lake Avon @ Upper Avon Valve Chamber	DAV7			42%	50%			0%	42%	50%	0%	0%	0%	17%		0%		25%
Lake Cataract @ Dam wall	DCA1			33%	92%			0%	58%	58%	0%	0%	8%	100%		0%		8%
Lake Cataract @ Cataract arm 5km U/S	DCA2			50%	100%			0%	58%	67%	0%	0%	0%	100%		0%		17%
Lake Cataract @ Loddon arm 4.5km U/S	DCA3			50%	100%			0%	50%	50%	0%	0%	0%	100%		0%		17%
Lake Cordeaux 60 m U/S of dam wall	DCO1			33%	17%			0%	33%	33%	0%	0%	17%	33%		0%		50%
Lake Cordeaux @ Jn. of Kentish & Cord. R.	DCO3			33%	17%			0%	42%	42%	0%	0%	8%	33%		0%		67%
Lake Nepean 50 m U/S of dam wall	DNE2			50%	33%			0%	75%	100%	67%	0%	83%	92%		0%		25%
Lake Nepean @ D/S Burke Junction	DNE6			42%	25%			0%	50%	100%	58%	0%	50%	92%		0%		67%
Raw Water (raw water supply agreement site specific standards refer Table 4.2, where there is no applicable benchmark the cells are greyed out).																		
Macarthur WFP raw water at Inlet to PS	HMAC1	0%				0%	0%	0%						0%	0%	0%	0%	

Site	Station Code	Physico-Chemical							Nutrients					Metals			Cyanobacteria	
		Total Alkalinity as CaCO3 (mg/L)	Conductivity @25 C - Field (mS/cm)	Dissolved Oxygen - Field (%Sat)	pH - Field	Total Hardness as CaCO3 (mg/L)	True Colour at 400nm (PES filter)	Turbidity - Field (NTU)	Nitrogen Ammoniacal (mg/L)	Nitrogen Oxidised (mg/L)	Nitrogen Total (mg/L)	Phosphorus Soluble Reactive (mg/L)	Phosphorus Total (mg/L)	Aluminium Total (mg/L)	Iron Total (mg/L)	Manganese Total (mg/L)	Areal Standard Unit (algae)	Chlorophyll-a (ug/L)
Nepean WFP raw water	HNED	0%				0%	0%	0%						0%	0%	0%	0%	
Illawarra WFP raw water	IWFP-R	0%				0%	0%	0%						0%	0%	0%	0%	

5.3.1 Catchments

Water quality across the Upper Nepean catchment sites reflects variations driven by rainfall, land use and natural catchment characteristics. Flow conditions remained relatively stable throughout the first ten months of the reporting period, with only minor increases observed in response to rainfall. A single major inflow event occurred in late May 2025. During the period, turbidity in the catchment streams increased in response to higher flows but quickly declined as flows subsided. Routine monitoring did not capture any turbidity exceedances above the guideline value due to the timing of sample collection.

Total aluminium remains the parameter with the highest overall number of benchmark exceedances for the Upper Nepean catchment sites, primarily due to the natural geology of the catchments, with concentrations often rising with increases in flow. pH results were also influenced by the natural geology of some Upper Nepean sub-catchments, with Sandy Creek, Little Burke River, Cataract River and Loddon River all continuing longer term trends of consistently low readings below the 6.5 pH unit lower guideline value. Dissolved oxygen levels also fell below the lower guideline of 90% saturation on multiple occasions at most sites, particularly during the warmer months of the year.

Ammoniacal nitrogen compliance improved at ten of the eleven Upper Nepean catchment sites this year, with only three sites — Cordeaux River, Cataract River, and Nepean River at McGuire's Crossing — recording non-compliance rates of 50% or higher. Oxidised nitrogen compliance varied between sub-catchments, with five sites recording 100% non-compliance, while another five recorded non-compliance rates of 8% or lower. Total nitrogen and total phosphorus had fewer sites recording exceedances, although the two Nepean River sites continue to record elevated concentrations of these analytes due to the rural residential land use in this sub-catchment. Sandy Creek in the Cordeaux catchment recorded a notable increase in Total Phosphorus when compared to FY24. There were no guideline exceedances recorded for soluble reactive phosphorus. The lower levels of available phosphorus in most streams limited algal growth, resulting in only three chlorophyll-a guideline exceedances across the Upper Nepean catchment in this reporting period.

5.3.2 Storages

Water quality in the Upper Nepean storages began FY25 reflecting the continued influence of the significant wet weather inflows that occurred late in the preceding period (April, May and June 2024). These inflows transported sediment, organic material, and catchment-derived metals into the storages, adversely impacting water quality, with effects persisting into FY25. As the year progressed, water quality within the Upper Nepean storages stabilised and improved, with more stable flow conditions dominating throughout much of the period. Another significant wet weather event occurred late in the period in May 2025, which again led to a deterioration in water quality across the storages. Turbidity within the storages increased following rain events, however full compliance to the ANZECC benchmark was still achieved, with all routine samples remaining below the 20 NTU guideline value.

Total aluminium concentrations were strongly influenced by the aforementioned inflows, with levels in all storages peaking early and late in the period following the significant rain events. All storages recorded improvements in aluminium concentrations during the period of stable flow, with Lake Avon and Lake Cordeaux returning below the benchmark level relatively quickly, resulting in fewer non-compliances. This represented a notable improvement for Lake Cordeaux

compared with previous years. In contrast, Lake Cataract and Lake Nepean continued the trend from previous years, remaining above the benchmark despite the improvements observed during the period of stable flow. Manganese concentrations remained consistently low and achieved full compliance with the ANZECC benchmark throughout the year.

In a pattern similar to the previous year, compliance with nutrient guidelines varied across the storages. Lake Nepean again registered the highest number of exceedances of all the Upper Nepean storages for all forms of nitrogen and phosphorus. The primary source of these elevated nutrients is runoff from the rural residential land use areas within the Nepean River sub-catchment. Bioavailable forms of nitrogen (ammoniacal and oxidised nitrogen) recorded exceedances in all storages, while total nitrogen achieved full compliance except in Lake Nepean. Total Phosphorus was fully compliant in Lake Avon, while a small number of non-compliances were recorded in Lake Cataract and Lake Cordeaux following rain events. Soluble reactive phosphorus achieved full compliance across all storages.

Lake Cordeaux continued the trend of recording the highest percentage of chlorophyll-a exceedances of the Upper Nepean storages, with the addition of the upstream Nepean site DNE6 which recorded a notable increase on FY24. Lake Cataract and Lake Avon continued to record fewer non-compliances for chlorophyll-a.

5.3.3 Water Filtration Plants

Water supplied for filtration to Illawarra WFP, Nepean WFP and Macarthur WFP recorded full compliance with the Raw Water Supply Agreement.

5.4 Woronora system

Sampling sites in the Woronora system are shown in Figure 5.3 below.

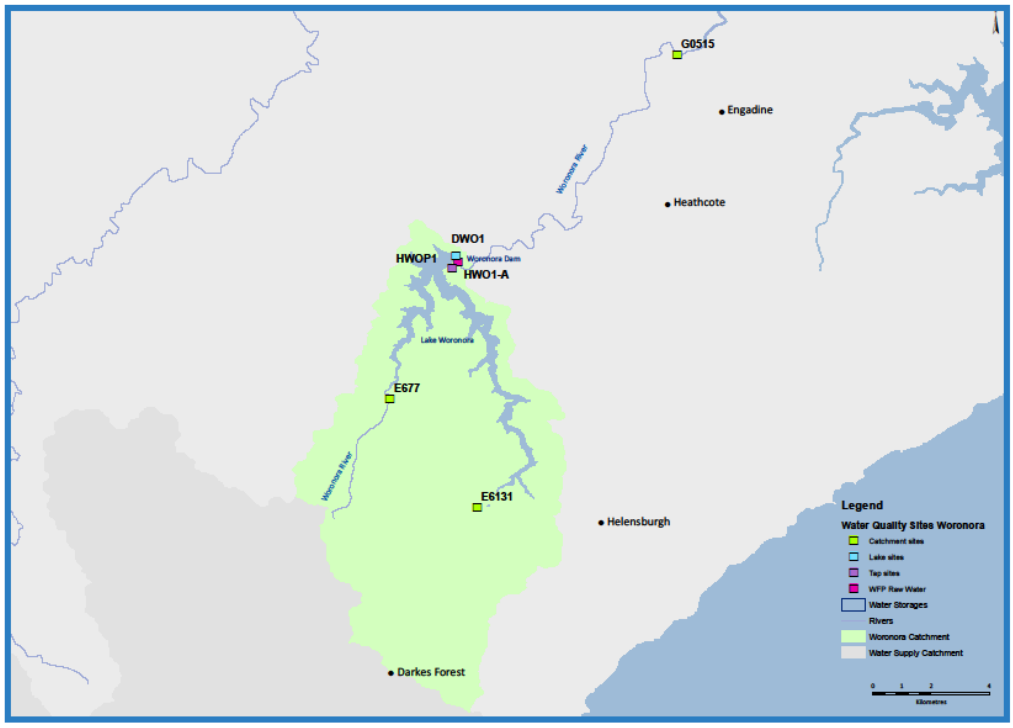


Figure 5.3: Sampling sites in the Woronora system.

Table 5.3: Woronora system catchments - percentage of routine samples outside benchmarks

Site	Station Code	Physico-Chemical							Nutrients					Metals			Cyanobacteria	
		Total Alkalinity as CaCO3 (mg/L)	Conductivity @25 C - Field (mS/cm)	Dissolved Oxygen - Field (%Sat)	pH - Field	Total Hardness as CaCO3 (mg/L)	True Colour at 400nm (PES filter)	Turbidity - Field (NTU)	Nitrogen Ammoniacal (mg/L)	Nitrogen Oxidised (mg/L)	Nitrogen Total (mg/L)	Phosphorus Soluble Reactive (mg/L)	Phosphorus Total (mg/L)	Aluminium Total (mg/L)	Iron Total (mg/L)	Manganese Total (mg/L)	Areal Standard Unit (algae)	Chlorophyll-a (ug/L)
Catchments (ANZECC guidelines refer Table 4.4, where there is no applicable benchmark the cells are greyed out).																		
Waratah Rivulet d/s Flatrock Crossing	E6131		0%	25%	0%			0%	8%	25%	0%	0%	0%	17%		0%		0%
Woronora R. Inflow	E677		0%	75%	100%			0%	0%	8%	0%	0%	0%	100%		0%		0%
Storages (ANZECC guidelines refer Table 4.3, where there is no applicable benchmark the cells are greyed out).																		
Lake Woronora @ Honeysuckle Ck Junction	DWO_THMD			25%	58%			0%	75%	100%	0%	0%	0%	100%		0%		8%
Lake Woronora 50 m U/S of dam wall	DWO1			33%	75%			0%	67%	100%	0%	0%	0%	100%		0%		8%
Raw Water (raw water supply agreement site specific standards refer Table 4.2, where there is no applicable benchmark the cells are greyed out).																		
Woronora WFP raw water	HWO1-A	0%				0%	0%	0%						0%	0%	0%	0%	

5.4.1 Catchments

Throughout most of FY25, conditions in the Woronora catchment remained relatively stable, with only minor inflow events recorded in response to rainfall between July 2024 and April 2025. A single major inflow event occurred in late May 2025. Turbidity in the catchment streams increased in response to higher flows but quickly declined as flows subsided, with no exceedances of the guideline value recorded in routine samples.

The more stable flow regime this year corresponded with a reduction in total aluminium exceedances in Waratah Rivulet, with only two results above the guideline value, both following heavy rainfall when sandstone particles were mobilised from the catchment. In contrast, Woronora River recorded an increase, with all samples exceeding the guideline value. Peak concentrations again coincided with rainfall, although even under baseflow conditions, aluminium remained marginally above the guideline. Marked differences in pH were also observed, with Woronora River results consistently below the lower guideline limit of 6.5 pH units, while Waratah Rivulet achieved full compliance.

Nutrient compliance improved at both sites when compared to FY24. In Woronora River, only a single nitrogen exceedance was recorded, with elevated oxidised nitrogen observed following a heavy rain event late in the preceding reporting period. Waratah Rivulet recorded a decrease in guideline exceedances across all forms of nitrogen, with those that did occur also linked to heavy rainfall. Phosphorus achieved full compliance with guideline values at both sites. Chlorophyll-a also recorded full compliance in line with the improved nutrient results.

Dissolved oxygen saturation fell below the 90% guideline at both sites, though the frequency of non-compliances shifted compared to FY24. Waratah Rivulet recorded a notable reduction in non-compliant results, while Woronora River showed an increase.

5.4.2 Storage

Water quality in Lake Woronora at the start of FY25 reflected the effects of significant wet weather inflow events that occurred late in FY24 (April, May and June 2024). Minor impacts were observed following another rainfall event in July 2024, after which conditions remained relatively stable for much of the year, with turbidity gradually improving up to May 2025. A further rainfall event in May 2025 generated another substantial inflow, leading to a short-term increase in turbidity; however, full compliance with the ANZECC benchmark was maintained, with all routine samples remaining below the 20 NTU guideline value.

Lake Woronora continues to consistently record non-compliance to the ANZECC benchmark for total aluminium, with the highest concentrations recorded early in the reporting period following the rainfall events of May, June and July 2024. Concentrations were generally declining throughout the year, until another increase following the rainfall event of May 2025.

Nutrient results showed full compliance for total phosphorus, soluble reactive phosphorus, and total nitrogen, while oxidised nitrogen and ammoniacal nitrogen continued the trend from previous years, with frequent benchmark exceedances recorded. Algal activity in the lake was generally low, with only a single exceedance of the 5 µg/L benchmark for Chlorophyll-a at each site, occurring in September 2024.

Dissolved oxygen levels fell below the lower guideline of 90% saturation during the cooler months of the year from April to July. pH compliance improved compared with FY24 but remained frequently below the guideline at both sites due to the low pH of Lake Woronora.

5.4.3 Water Filtration Plant

Water supplied to Woronora WFP for filtration recorded full compliance with the relevant Raw Water Supply Agreement.

5.5 Blue Mountains system

Sampling sites in the Blue Mountains system are shown in Figure 5.4 below.

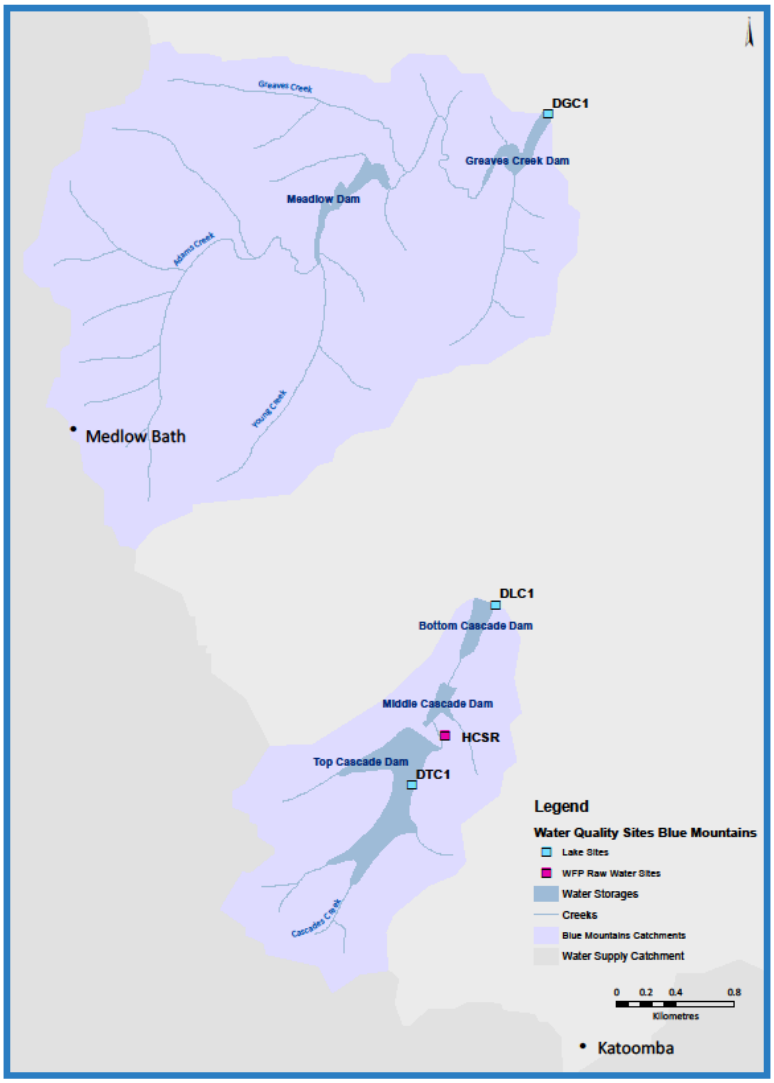


Figure 5.4: Sampling sites in the Blue Mountains system.

Table 5.4: Blue Mountains system storages - percentage of routine samples outside benchmarks

Site	Station Code	Physico-Chemical							Nutrients					Metals			Cyanobacteria	
		Total Alkalinity as CaCO3 (mg/L)	Conductivity @25 C - Field (mS/cm)	Dissolved Oxygen - Field (%Sat)	pH - Field	Total Hardness as CaCO3 (mg/L)	True Colour at 400nm (PES filter)	Turbidity - Field (NTU)	Nitrogen Ammoniacal (mg/L)	Nitrogen Oxidised (mg/L)	Nitrogen Total (mg/L)	Phosphorus Soluble Reactive (mg/L)	Phosphorus Total (mg/L)	Aluminium Total (mg/L)	Iron Total (mg/L)	Manganese Total (mg/L)	Areal Standard Unit (algae)	Chlorophyll-a (ug/L)
Storages (ANZECC guidelines refer Table 4.3, where there is no applicable benchmark the cells are greyed out).																		
Lake Greaves @ dam wall	DGC1			67%	100%			0%	100%	100%	8%	0%	25%	100%		0%		0%
Lower Cascade Lake 25 m U/S of dam wall	DLC1			67%	17%			0%	33%	83%	17%	0%	0%	0%		0%		0%
Upper Cascade Lake 20m U/S of dam wall	DTC1			67%	25%			0%	25%	75%	8%	0%	17%	25%		0%		27%
Raw Water (raw water supply agreement site specific standards refer Table 4.2, where there is no applicable benchmark the cells are greyed out).																		
Cascade WFP raw water	HCSR	0%				0%	0%	0%						0%	0%	0%	8%	

5.5.1 Catchments

The Blue Mountains catchments are very small (<20 km2 in total), and inflow quality is represented by water quality in the lakes. There are no routine monitoring sites in the Blue Mountains catchments.

5.5.2 Storages

The Blue Mountains lakes were impacted by a wet weather event in May 2025. The event saw significant inflows into the system despite the relatively small catchment. Impacts to water quality were minor. Other rainfall events did not impact the system.

See section 7.4.2 for information on PFAS.

Dissolved oxygen concentrations were consistent throughout the system, with marked increase in exceedances in all the lakes. All exceedances were only slightly out of target range. pH was outside of benchmarks for 100% of samples at Greaves Creek which has been seen in previous years, ranging from 4.8 to 5.8 units. Exceedances for pH at Lower and Top Cascades lakes were only minor and have improved from FY24.

Elevated nitrogen, specifically ammoniacal and oxidised nitrogen, was again seen across the lake system, increasing from previous years. This is likely due to recent years experiencing higher rainfall. Aluminium concentrations remain elevated in Greaves Creek, exceeding benchmarks in all samples again this year. Concentrations in Lower and Top Cascades were unchanged from FY24, with a minor exceedance in Top Cascade.

There has been a decrease in chlorophyll-a concentrations at Top Cascade this year with 27% of samples outside of guidelines. This indicates a decrease in algal activity which has been observed through the reporting period. There were no exceedances in other lakes.

5.5.3 Water Filtration Plant

Near full compliance with the relevant Raw Water Supply Agreement was achieved for supply to Cascade WFP, with a single exceedance of algal ASU the only exception. This exceedance occurred in March 2025 due to an increase in diatom numbers.

5.6 Shoalhaven system

Sampling sites in the Shoalhaven system are shown in Figure 5.5 below.

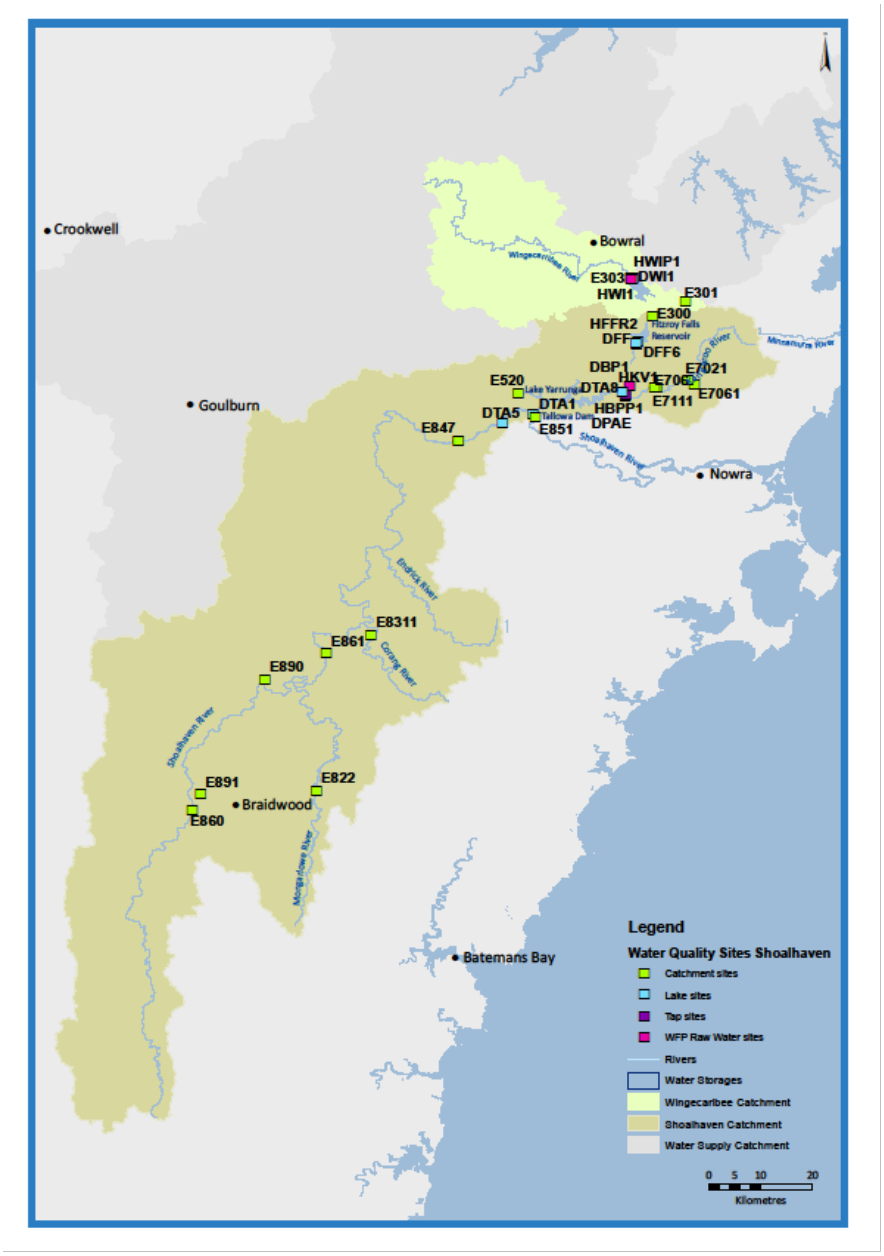


Figure 5.5: Sampling sites in the Shoalhaven system

Site	Station Code	Physico-Chemical							Nutrients					Metals			Cyanobacteria	
		Total Alkalinity as CaCO3 (mg/L)	Conductivity @25 C - Field (mS/cm)	Dissolved Oxygen - Field (%Sat)	pH - Field	Total Hardness as CaCO3 (mg/L)	True Colour at 400nm (PES filter)	Turbidity - Field (NTU)	Nitrogen Ammoniacal (mg/L)	Nitrogen Oxidised (mg/L)	Nitrogen Total (mg/L)	Phosphorus Soluble Reactive (mg/L)	Phosphorus Total (mg/L)	Aluminium Total (mg/L)	Iron Total (mg/L)	Manganese Total (mg/L)	Areal Standard Unit (algae)	Chlorophyll-a (ug/L)
Catchments (ANZECC guidelines refer Table 4.4, where there is no applicable benchmark the cells are greyed out).																		
Yarrunga Creek @ Wildes Meadow	E300		0%	100%	8%			0%	100%	100%	100%	0%	50%	100%		0%		25%
Caalang CK Old Kangaloon Rd Ford	E301		0%	42%	0%			0%	67%	100%	100%	0%	42%	100%		0%		0%
Bundanoon Creek at the Rocks	E520		0%	33%	8%			0%	67%	67%	92%	0%	50%	67%		0%		33%
Brogers Creek@Clinton Park	E7021		0%	33%	17%			0%	75%	92%	67%	17%	92%	100%		0%		0%
Kangaroo River @ Hampden Bridge	E706		0%	17%	0%			0%	92%	100%	92%	50%	100%	92%		0%		17%
Kangaroo River at Oakdale	E7061		0%	50%	25%			0%	75%	83%	42%	0%	67%	92%		0%		8%
Mongarlowe R. at Mongarlowe	E822		0%	50%	8%			0%	33%	67%	8%	0%	25%	100%		0%		0%
Corang River	E8311		0%	42%	8%			0%	58%	8%	25%	0%	8%	100%		0%		0%
Shoalhaven R @ Fossickers Flat	E847		0%	0%	8%			8%	58%	50%	42%	0%	42%	67%		0%		17%
Shoalhaven R @ Mount View	E860		17%	25%	25%			0%	50%	42%	67%	0%	92%	100%		0%		8%
Shoalhaven R @ Hillview	E861		0%	17%	0%			0%	42%	33%	75%	0%	75%	100%		0%		17%
Boro Ck @ Marlowe	E890		0%	92%	0%			0%	92%	67%	100%	0%	83%	100%		0%		42%
Gillamatong Creek @ Braidwood	E891		83%	83%	8%			0%	75%	92%	92%	58%	100%	50%		0%		50%
Storages (ANZECC guidelines refer Table 4.3, where there is no applicable benchmark the cells are greyed out).																		
Bendeela Pondage	DBP1			50%	17%			0%	83%	83%	100%	17%	100%	83%		0%		67%
Lake Fitzroy Falls @ Midlake	DFF6			33%	8%			0%	92%	75%	100%	0%	100%	100%		0%		100%
Lake Yarrunga@ 100m from Dam Wall	DTA1			42%	17%			8%	92%	83%	58%	42%	83%	75%		0%		42%
Lake Yarrunga @ Shoalhaven River	DTA5			50%	8%			8%	92%	83%	67%	42%	92%	83%		0%		17%
Lake Yarrunga @ Kangaroo R at Bendeela PS	DTA8			25%	0%			0%	100%	92%	92%	33%	100%	100%		0%		75%
Wingecarribee Lake at outlet	DWI1			33%	8%			0%	83%	75%	92%	0%	92%	75%		0%		83%
Raw Water (raw water supply agreement site specific standards refer Table 4.2, where there is no applicable benchmark the cells are greyed out).																		
Kangaroo Valley WFP Inlet	HKV1	0%			15%	0%	8%	8%							0%	0%	0%	
Wingecarribee WFP raw water	HWI1	0%			0%	0%	0%	0%							0%		0%	

5.6.1 Catchments

Hydrology of the Shoalhaven catchments vary significantly with Lake Yarrunga being fed by large feeder catchments whereas Wingecarribee Reservoir and Fitzroy Falls Reservoir having significantly smaller catchments. The variance in hydrology and the exposure to pollutant sources subsequently varies and this is reflected with the number of catchment monitoring locations in Lake Yarrunga (12), Wingecarribee Reservoir (1), Fitzroy Falls Reservoir (0).

Catchment streams in the Shoalhaven generally are more hydrologically active and combined with significant levels of animal husbandry in the catchment, elevated nutrient export to the stream is to be expected. Performance of nitrogen and its derivatives showed frequent exceedances at all sites excepting the Mongarlowe and Corang Rivers (catchment is predominately National Park and State Forest). Total phosphorus also exceeded frequently noting that soluble reactive phosphorus remained within benchmarks in the majority of samples. This difference in performance suggests that phosphorus when transported through the catchment is bound within organic colloids.

Aluminium and oxidised nitrogen showed the most frequent exceedances across all sites in the catchment. This reflects the frequency of farming occurring across the catchment and the associated land disturbance from a catchment rich in sandstone, basalt and granites.

5.6.2 Storages

As reflected by the catchment results, Lake Yarrunga in the Shoalhaven system continued to return high exceedance rates for nutrients. This is typical of the Shoalhaven system and reflects the agricultural land use and active hydrology in the catchment in particular given the frequency in inflows during this reporting period.

Aluminium concentrations continued to be high across the Shoalhaven storages, with all lake sites regularly exceeding the guidelines. The high levels of aluminium are typical of the geology of the region as mentioned above.

Wingecarribee Reservoir and Fitzroy Falls Reservoir once again returned a significant number of exceedances for total phosphorus, nitrogen and its derivatives and chlorophyll-a, with species that can produce potentially toxic chemicals present on a number of occasions, particularly in Wingecarribee Reservoir.

5.6.3 Water Filtration Plants

Raw water supplied to Kangaroo Valley Water Filtration Plant (WFP) was 85% compliant with the relevant Raw Water Supply Agreement targets with the exception of pH (15%). The supply point to Kangaroo Valley WFP is in a channel which connects the upstream and downstream portions of the Shoalhaven Hydro scheme. Water quality at this site is influenced by Lake Yarrunga, Fitzroy Falls Reservoir and the residence time in Bendeela Pondage. These exceedances were related to the transfer of water from Lake Yarrunga during recession from inflow events and did not impact plant performance.

Sampling at the inlet of Wingecarribee WFP had 100% compliance against the benchmarks. Wingecarribee Reservoir does have a history of significant algal growth but during this season biomass remained lower than expected despite the aforementioned nutrient loadings. This is due to a prevalence of monads, chrysophytes and diatoms consistently dominating the assemblage and sequestering nutrients from cyanobacterial growth.

5.6.4 Recreational Monitoring

Fitzroy Falls did not exceed either the minor or major alert benchmark for enterococci. Similar to FY24, the minor alert benchmark for potentially toxic cyanobacteria for primary contact was exceeded. In these exceedances, Microcystis sp. was the dominant potentially toxic species in the assemblage. The lake was below the major alert threshold for potentially toxic cyanobacteria through the year, which did not impact recreational activities in the lake.

At Lake Yarrunga, the number of exceedances for enterococci has decreased this year. Three exceptions were recorded above the minor alert benchmark, and the major alert benchmark was exceeded on one occasion in April following significant inflows in late March. Algal activity was low through the reporting period, with no minor or major benchmarks for cyanobacteria exceeded.

Table 5.5: Recreational monitoring - percentage of samples exceeding benchmarks

Site	Station Code	Primary Contact Minor Alert Benchmark Percentage Exceedance					Secondary Contact & Primary Contact Major Alert Percentage Exceedance				
		Enterococci (cfu/100ml)	Microcystin LR+RR+YR (ug/L)	Algal Biovolume - Toxic Cyanobacteria (mm3/L)	Algal Count - Toxic Cyanobacteria (cells/mL)	Algal Biovolume - Cyanobacteria (mm3/L)	Enterococci (cfu/100ml)	Microcystin LR+RR+YR (ug/L)	Algal Biovolume - Toxic Cyanobacteria (mm3/L)	Algal Count - Toxic Cyanobacteria (cells/mL)	Algal Biovolume - Cyanobacteria (mm3/L)
Recreational monitoring (NHMRC guidelines - refer Table 4.5).											
Lake Fitzroy Falls @ Midlake	DFF6	0%	-	21%	0%	-	0%	0%	0%	0%	0%
Lake Yarrunga @ Kangaroo R at Bendeela PS	DTA8	25%	-	0%	0%	-	8%	0%	0%	0%	0%

5.7 Algal monitoring

All routine catchment and lake samples are analysed for algae if chlorophyll a exceeds 5 µg/L. Selected lake sites, which are the closest point to supplying water filtration plants have unconditional algae counts and speciation undertaken regardless of chlorophyll a. At locations with a history of algal activity, seasonal monitoring is conducted more frequently in the warmer months between October and May to facilitate early detection of emerging algal events. Routine algal monitoring is also undertaken in raw water supplied to water filtration plants. Statistical summaries are provided in Appendix A. Refer to section 4.7 for relevant benchmarks.

5.7.1 Warragamba system

Within the Warragamba catchment, sites exposed to urban runoff showed more exceedances than the catchment areas draining from more natural environments. Monitoring sites located in and around Lithgow, Goulburn and Bowral showed higher levels of chlorophyll-a than other sites within the Warragamba catchment. Sites of frequent exceedance were specifically around and downstream of Goulburn including Murrays Flat, Golden Valley, Towers, Rossi Weir and Berrima. Unlike previous years, sites around the Lithgow area showed improved performance with only one in three samples at Farmers Creek in Lithgow exceeding guidelines. Other sites throughout the Warragamba catchment performed comparably to previous years with few exceedances.

Potentially toxic cyanobacterial species were detected infrequently at six catchment locations in the Warragamba catchment. These detections were associated with more frequent chlorophyll-a exceedances. Sites that showed detections include Wingecarribee River at Berrima, Mulwaree River at Towers, Wollondilly River at Murrays Flat, at Golden Valley and near Rossi Weir and at Whites Creek downstream of Moss Vale STP. No evidence was determined of blooms developing at any of these sites.

In the major arms of Lake Burragorang, sporadic low numbers of potentially toxin producing cyanobacteria were reported in the counts throughout the lake through spring, summer and autumn, peaking with 4730 cells/mL of potentially toxin producing species being detected in the Coxs River Arm (DWA12) in March. Downstream in the gorge, few detections of potentially toxin producing cyanobacteria occurred throughout the year. At no time did cyanobacteria develop into a bloom. Populations of these organisms are managed via drawing from deep in the water column during their presence.

Chlorophyll a concentrations in Prospect Reservoir exceeded the benchmarks at an increased frequency compared to FY24, with 50% of samples (mid lake) and 33% of samples (near the Pumping Station) recording results above the threshold. Low concentrations of potentially toxin producing cyanobacterial species were periodically recorded and remained well within supply agreement thresholds. Trace detections occurred infrequently of algal toxins (combined microcystin) during the reporting period however these detections were only at the limit of reporting and did not breach guidelines.

Algal ASU did not exceed Raw Water Supply Agreement standards at Prospect, Orchard Hills or Warragamba WFPs.

5.7.2 Upper Nepean system

Chlorophyll-a concentrations at catchment sites in the Upper Nepean system remained consistently low, with only two sites recording results above the 5 µg/L threshold for algal speciation during FY25. The exceedances occurred at the Cordeaux River (two instances) and Flying Fox Creek in the Avon catchment (one instance).

Algal activity across the Upper Nepean storages varied between lakes, with Lakes Cordeaux and Nepean recording a greater number of chlorophyll-a results above the 5 µg/L benchmark compared to Lakes Avon and Cataract. Elevated chlorophyll-a levels were frequently measured alongside increased algal ASU concentrations, with Lakes Nepean and Cordeaux again recording the highest ASU levels of the Upper Nepean storages.

Elevated ASU levels in the storages were prevented from impacting the raw water supplied to Macarthur, Nepean and Illawarra WFPs through appropriate offtake selections. This resulted in no samples from FY25 exceeding the site specific Raw Water Supply Agreement for ASU at Macarthur, Nepean and Illawarra WFP.

Two detections of potentially toxin producing cyanobacteria occurred in the raw water supplied to Nepean WFP. Microcystis sp. were identified in low numbers in March and June 2025, with cell counts remaining below levels of concern for toxin production.

5.7.3 Woronora system

The Woronora system continued to record low levels of algal activity in the catchment, storage and at the inlet to Woronora WFP in FY25.

The two catchment sites (Waratah Rivulet and Woronora River) recorded low chlorophyll-a concentrations, with no samples exceeding the 5 µg/L trigger for algal speciation analysis. Algal activity in Lake Woronora was also low, with a single result at each of the storage monitoring locations rising above the 5 µg/L guideline level for chlorophyll a. Raw water supplied to Woronora WFP for treatment therefore remained of a high standard with low ASU recorded throughout FY25. Small numbers of the potentially toxin producing cyanobacteria Microcystis sp. were identified at the inlet to Woronora WFP in May 2025, however there was no concern for toxin production due to the low cell numbers.

5.7.4 Blue Mountains system

Chlorophyll-a concentrations in Lower Cascade were reduced compared to previous years with no exceedances recorded. Chlorophyll-a concentrations at Greaves Creek did not trigger any algal analysis although special monitoring saw some samples speciated around September to October 2024. Algal activity in Greaves Creek during this period was low (< 200 ASU/mL).

At Top Cascade chlorophyll-a concentrations indicate a 23% decrease in algal activity through the reporting period. From July to November 2024 algal activity was still elevated from FY24, with results above 500 ASU/mL before numbers decreased through November and December. From February 2025, algal activity increased significantly with the highest concentrations of >2000 ASU/mL recorded during March 2025. Concentrations remained elevated through to the end of the reporting period. Filter clogging diatoms have remained dominant in the assemblage this year.

Sampling raw water supplied to Cascade WFP was in line with the results from Top Cascade. Concentrations peaked around March 2025 before decreasing and remaining stable through to the end of the reporting period.

5.7.5 Shoalhaven system

Chlorophyll a in the Shoalhaven system is noted by higher levels of exceedance in the storages when compared to the catchment. Most sites in the Shoalhaven catchment infrequently showed high concentrations of chlorophyll a with the sites showing the highest exceedances including Gillamatong Creek (50%), Boro Creek (42%) and Bundanoon Creek (33%). Increased hydrological activity within-stream generally led to better performance this year than FY24.

All storages in the Shoalhaven system once again exceeded the chlorophyll a benchmark regularly throughout the year. In Lake Yarrunga, only the Bendeela Campground site showed an elevated detection (26,570 cells/mL) with few detections in the rest of the lake. Low numbers of potentially toxin producing cyanobacteria were present in most samples in Bendeela Pondage, peaking with a result of 9,420 cells/mL. Likewise, Fitzroy Falls returned moderate detections of potentially toxin producing cyanobacteria throughout the year, peaking at DFF6 recording 26,570 cells/mL. During the reporting period, these detections did not eventuate in a potentially toxic cyanobacterial bloom.

Frequent detections of potentially toxin producing cyanobacteria occurred in Wingecarribee Reservoir throughout the reporting year, with a peak detection of 22,650 cells/mL observed, significantly lower than FY24. Combined Microcystins were also detected intermittently throughout the year due to the persistent background detections of potentially toxic cyanobacteria. Unlike FY24, biomass did not develop to bloom proportions. No impacts to water supplied for treatment were observed during this reporting period.

Raw water supplied to Kangaroo Valley WFP and Wingecarribee WFP did not exceed the site-specific standard for algal filter clogging potential (ASU) during the reporting period.

5.8 Cryptosporidium and Giardia monitoring

Routine monitoring is undertaken in catchments, storages and delivery networks at varying frequencies as agreed between WaterNSW, Sydney Water and NSW Health. Statistical summaries are provided in Appendix A.

5.8.1 Catchments

Routine monitoring for Cryptosporidium and Giardia is undertaken at seven selected streams in the Warragamba catchment as part of the pathogen monitoring program. The sampling schedule is monthly, except for Werriberri Creek (E531) which is weekly. This section discusses routine monitoring for Cryptosporidium and Giardia, refer to Section 7.1 for wet weather monitoring.

During the reporting period Cryptosporidium oocysts were detected in an average of 6% of samples over all sites (ranging from 0 – 9% at any individual site. Giardia cysts were detected in an average of 18% of samples over all sites (ranging from 0 – 45% at any individual site). The occurrence of Cryptosporidium and Giardia was lower than in FY24.

5.8.2 Storages

Routine monitoring was conducted weekly at Wingecarribee (DWI1) reservoir, and monthly sampling of water from Prospect Reservoir (RPR1) and Lake Oberon (DOBR01). Sampling was also conducted in storages at a higher frequency during events.

Of the 69 routine samples collected during the reporting period, Cryptosporidium and Giardia (oo)cysts were detected in 2 (3%) and 8 (12%) samples respectively, with none above the alert range for either Cryptosporidium nor Giardia.

5.8.3 Water Filtration Plants

A joint monitoring program for raw water at the inlet to the water filtration plants is undertaken by Sydney Water and results are provided to WaterNSW and NSW Health. Larger sample volumes (up to ~100 L) are used to improve the detection limit and assist in quantifying catchment risk.

There were no incident level detections (i.e. ≥10 (oo)cysts/10 L) of Cryptosporidium from routine monitoring of water at inlet of filtration plants during the reporting period. There were two incident level detections of Giardia in the reporting period, both in the raw water at Nepean.

5.9 Picnic area monitoring

WaterNSW undertakes routine monitoring at picnic taps where the water is supplied directly from the storages or where potable water is carted in, both water sources undergo chlorination prior to distribution. Annual monitoring is also done at the picnic areas which receive reticulated town water.

Table 5.6: Picnic areas - percentage of samples exceeding benchmarks

Site	Station Code	pH - Field	Turbidity - Field (NTU)	Aluminium Total (mg/L)	Iron Total (mg/L)	Manganese Total (mg/L)	Free Chlorine residual - Field (mg/L)	Chlorophyll-a (ug/L)	Toxic Cyanobacterial Count (cells/mL)	Coliforms Total (cfu/100mL)	E. coli (orgs/100mL)
Picnic taps (PWS guidelines refer Table 4.6)											
Avon Picnic Area Tap	HAV3	8%	4%	0%	19%	0%	96%	0%	0%	6%	2%
Cataract picnic area tap / fountain	HCA1 / HCA2 / HCA3	39%	6%	0%	49%	4%	88%	0%	0%	0%	0%
Cordeaux Picnic Area Tap	HCO6	4%	6%	0%	92%	15%	100%	0%	0%	4%	0%
Fitzroy Falls Picnic Tap	HFFR2	8%	0%	0%	0%	0%	47%	0%	0%	17%	0%

Exceedances in turbidity have improved this year, particularly at Cordeaux and Cataract, where only three exceptions were recorded at each site. Avon recorded two turbidity exceptions, whilst Fitzroy Falls had none. Many of the exceedances occurred due to periods of low water usage, which resulted in the stripping of biofilms. Similar to FY24, low chlorine residuals were observed in the picnic area end taps. Water usage at the picnic taps can be low and variable, which leads to long residence time in the reticulation system, causing chlorine decay. The efficacy of chlorination is validated based on chlorine concentrations and contact times at the dosing plants, as well as the absence of indicator bacteria. There was one exception at the Avon picnic area, with 7 cfu/100 mL E. coli detected. During this time, the Avon picnic area was on manual chlorine dosing; however, the free chlorine residual was maintained above 0.5 mg/L. Investigation and further sampling did not identify any issues with this supply. The potable water supply at Avon was restored following a negative resample for E. coli.

Exceedances in aesthetic guidelines for iron increased this year at Cordeaux and Cataract picnic areas, which typically have higher metal concentrations in their source waters. Avon picnic area showed some improvement, recording eight exceptions, while Fitzroy Falls reported none. The leaching of metals due to corrosive water and low water usage in picnic areas also contributes to these exceedances. However, improvements in manganese concentrations were recorded at all sites, with no exceptions at Avon and Fitzroy Falls. Most of the metal exceedances at the Cataract picnic area were recorded during periods when the potable supply from the drinking water fountain was offline and samples were collected from the picnic area tap while water usage was low.

The Cataract picnic area has seen improvements in pH at the picnic area tap compared to FY24, with 39% of samples falling below the lower target of 6.5 units. The low pH at Cataract is primarily due to the source water pH being typically around 6 units and the absence of pH adjustment in the treatment process. Four samples from Avon and Fitzroy Falls exceeded the pH guidelines, with all four samples from Fitzroy Falls exceeding the upper limit of 8.5 units, with a maximum pH of 8.7 units.

6 Monitoring for Water Supply Work Approvals

6.1 Water quality

Sampling of downstream storages is undertaken in accordance with the requirements of the four Water Supply Work Approvals (WSWAs) issued to WaterNSW under the Water Sharing Plan for the Greater Metropolitan Region Unregulated River Water Sources 2023.

Table 6.1 reports the results of downstream sampling against the ANZECC benchmarks.

Table 6.1: Downstream of storages - percentage of samples exceeding benchmarks

Station	Site Code	Number of samples	pH - Field	Turbidity - Field (NTU)	Dissolved Oxygen - Field (%Sat)	Nitrogen Total (mg/L)	Phosphorus Total (mg/L)	Chlorophyll-a (ug/L)
Wingecarribee River								
Wingecarribee River @ Sheepwash Bridge	E303	12	0%	0%	58%	83%	0%	83%
Shoalhaven River								
Shoalhaven R @ d/s Tallowa Dam	E851	12	8%	0%	25%	25%	8%	33%
Woronora River								
Woronora River @ the Needles	G0515	12	0%	0%	8%	0%	0%	0%
Nepean River								
Nepean River @ Yarramundi	N44	12	8%	0%	33%	83%	0%	83%
Nepean River @ Penrith	N57	12	0%	0%	25%	75%	0%	58%
Nepean River 500m D/S of confluence of Warra R.	N64	11	0%	0%	18%	100%	0%	64%
Warragamba River U/S of confluence of Nepean R.	N641	12	0%	0%	25%	92%	0%	25%
Nepean River @ Wallacia Bridge	N67	12	0%	0%	25%	100%	0%	58%
Nepean River @ Sharpes Weir	N75	12	0%	8%	8%	100%	8%	83%
Nepean River @ Menangle Br	N85	12	0%	0%	17%	8%	0%	58%
Pheasant's Nest Weir Pool	N86	12	8%	0%	0%	0%	0%	0%
Cataract River @ Broughtons Pass	N881	12	8%	0%	0%	0%	0%	0%
Nepean River @ Maldon Weir	N92	12	8%	0%	25%	25%	0%	50%

Wingecarribee River nitrogen and chlorophyll-a concentrations have increased since FY24, with 83% of samples for both analytes exceeding guidelines. Turbidity, phosphorus and pH at the Sheepwash Bridge site was within targets in all samples collected, however dissolved oxygen saturation exhibited reduced performance with 58% of samples exceeding the ANZECC guidelines. No observable impacts were identified from these results.

The downstream Shoalhaven River site was accessible for sampling for the whole year. Water quality is consistent with FY24, with nitrogen exceeding ANZECC in 3 out of 12 samples, and only one phosphorus exceedance observed. Chlorophyll a concentrations exceeded the benchmark in 33% of samples this year.

Benchmark compliance at Woronora River downstream of the storage improved on previous years, with very high compliance recorded in FY25. Only a single benchmark exceedance for dissolved oxygen was recorded at this site within FY25.

The Nepean River downstream sites exhibited similar water quality patterns to previous years, with water quality indicators generally declining with increased distance from the storages, largely due to contributions from downstream tributaries. Total nitrogen compliance at Menangle bridge and further upstream was high, with compliance generally declining at the sites further downstream. Total Phosphorus recorded a notable improvement on FY24 with only a single exceedance recorded across the Nepean River sites in FY25. Turbidity and pH remained largely compliant across all sites, with only a small number of exceedances recorded. Chlorophyll a compliance followed a similar pattern to FY24, with full compliance at Pheasants Nest and Broughtons Pass, and moderate to high numbers of exceedances at other sites.

7 Targeted and investigative monitoring

WaterNSW undertakes targeted and investigative monitoring to understand and assess impacts that are not addressed by the routine monitoring program. The results of the monitoring are discussed in greater detail in the sections below.

A summary of water quality incidents during the reporting period is included in Section 8.

7.1 Wet weather inflow monitoring

WaterNSW conducts wet weather sampling to assess the impacts on water quality from runoff during significant rainfall events. The use of autosamplers in catchment streams as part of the wet weather monitoring program has concluded after more than two decades of valuable data collection, due to catchment and asset protection requirements and safety concerns associated with accessing remote sites following heavy rainfall. WaterNSW continues to monitor water quality risks from inflows to storages using real time water quality data from hydrometric stations located in key catchment streams, as well as strategically located automated vertical profiling systems that provide real time water quality data to track wet weather inflows through storages. This data is used to guide the targeted collection of water samples to continue to effectively inform water quality risks.

7.2 Catchment Risk Characterisation

The average pathogen risk for catchments supplying each storage lake was determined from an assessment of catchment hazards and historical water quality monitoring data based on the Health Based Targets (HBT) section of the Australian Drinking Water Guidelines (ADWG).

The greatest challenges to water treatment typically occur during heavy rain events when contaminants from the catchment and higher river flows result in poor water quality. At such times water quality monitoring is increased at raw water intakes to water filtration plants and at selected catchment and storage sites. The Pathogen Campaign Monitoring Program was conducted to enhance pathogen monitoring during high inflow events at selected catchment sites to allow the pathogen risk to be refined during events.

Cryptosporidium hazard assessment is conducted weekly and more frequently during events, to inform any decisions on potential advisory notifications for boiling water (boiled water alerts) if water coming out of water filtration plants fail their turbidity targets. The assessments are based on a range of pathogen risk factors such as the condition of the storages and catchments, rainfall, inflow volumes, reports of overflows from sewage treatment plants, dairy effluent ponds and stormwater overflows, and turbidity and pathogen data.

Supplementary monitoring of transfers from the Frish River Water Supply Scheme to the Cascades has been undertaken and is continuing. This monitoring will inform future reviews of the catchment risks for the Cascade WFP.

7.3 Macroinvertebrate monitoring

Macroinvertebrates are monitored during September to November annually, under the Macroinvertebrate Monitoring Program (MMP), as a catchment health indicator across the Sydney Drinking Water Declared Catchment. Therefore this Report contains the results from the monitoring in that period of 2024 because it is the first half of FY25. In the September to November 2024 monitoring (FY25), AUSRIVAS scores were generated for 76 of 86 sites due to

high flows restricting site availability and loss of some habitat data in a digital system upgrade. In 2024, macroinvertebrate health declined across the declared catchment relative to 2023, although the change in OE50 score value at each site was not always large enough to result in a change of AUSRIVAS band grade (Figure 7.1). Of the 74 sites monitored in both 2023 and 2024, 9 received a higher AUSRIVAS score in 2024, and 65 received a lower AUSRIVAS OE50 score (Table 7.1).

Most sites in 2024 were rated as AUSRIVAS band B, or below reference condition. Macroinvertebrate health declined in the Warragamba catchment in 2024, with 2 sites increasing, and 15 sites decreasing by one or more band grade. In the Tallowa catchment, no sites increased in band grade and 14 sites decreased by one or more band grade. A decrease in band grade was observed at two Metropolitan catchment sites; one Woronora catchment site and the single Blue Mountains catchment site. A total of 11 sites could not be compared to 2023 due to missing data. Site-specific AUSRIVAS scores are presented in Table 7.1.

Rainfall across the Sydney Drinking Water Catchment during the September - November 2024 AUSRIVAS sampling period was close to the long-term average, so it is not clear whether climatic factors are related to the observed changes in macroinvertebrate health. Further investigation is required to establish whether the decline in macroinvertebrate health observed in 2024 is part of a longer-term trend and identify the key factors driving this change.

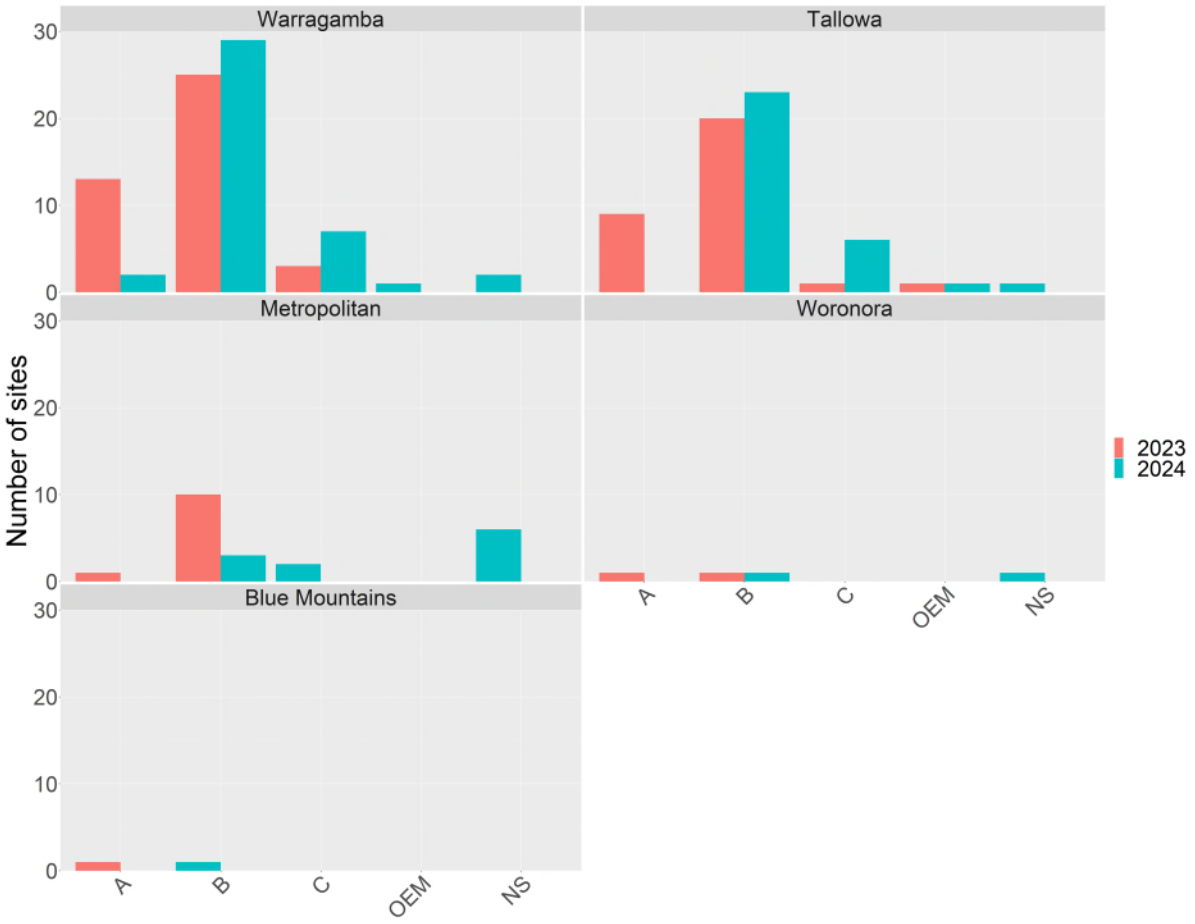


Figure 7.1: Distribution of AUSRIVAS band grades for sites monitored in FY24 and FY25.
Band grades are Reference (A), Below Reference (B), Well Below Reference (C), Outside the Experience of the Model (OEM) or Not Sampled (NS)

Table 7.1: Mean FY25 AUSRIVAS scores, compared to FY24 results.

Band grades are Reference (A), Below Reference (B), Well Below Reference (C), Outside experience of the AUSRIVAS model (OEM) or Not Sampled (NS). AUSRIVAS band thresholds are adjusted to the mean edge and riffle band value for sites where both edge and riffle habitats were sampled. *shows sites sampled within 2 weeks of high rainfall or flow events.

Sub-catchment	Site	Site Name	OE50		Band Grade	
			FY24	FY25	FY24	FY25
Warragamba						
Kowmung	E130	Kowmung River at Cedar Ford	0.73	0.62	B	B
Lake Burragorang	MMP59	Butchers Creek u/s Lake Burragorang	0.65	0.28	B	C
Little River	E243	Little River at Fireroad W4I	0.65	0.49	B	B
Lower Cox's	E153	Leura Creek d/s South Katoomba WPCP	0.94	0.48	A	B
Lower Cox's	E157	Kedumba River at Maxwells Crossing	0.88	0.62	A	B
Mid Cox's	E0114	Coxs River d/s Lake Lyell	0.73	0.73	B	B
Mid Cox's	E083	Coxs River at Kelpie Point	1.02	0.76	A	B
Mid Cox's	MMP276	Lowther Creek at Ecclesbourne	0.88	0.67	A	B
Mid Cox's	MMP55	Little River at Six Foot Track	1.06	0.62	A	B
Mulwaree	A5	Mulwaree River at Lake Bathurst	0.44	0.74	B	B
Mulwaree	E457	Mulwaree River at Towers Weir	0.82	0.58	A	B
Mulwaree	MMP188	Mulwaree River at Currawang Rd	0.88	0.72	A	B
Nattai	E203	Gibbergunyah Creek 400m d/s of Mittagong STP discharge	0.46	NS	B	NS
Nattai	E206	Nattai River at The Crags	0.68	0.50	B	B
Nattai	E210	Nattai Creek at Smallwoods Crossing	0.81	0.60	B	B
Nattai	MMP277	Drapers Creek at Drapers Creek Rd Firetrail	0.55	0.48*	B	B*
Nattai	MMP278	Nattai Creek at Wombeyan Caves Rd	0.81	0.32	A	C
Nattai	MMP279	Nattai River d/s Mittagong pool	0.69	0.58	B	B
Upper Cox's	A16	Coxs River at Lidsdale	0.62	0.60	B	B
Upper Cox's	E0115	Coxs River u/s Lake Lyell	0.94	0.77	A	B
Upper Cox's	E0321	Coxs River at Lithgow	0.88	0.72	A	B
Upper Cox's	E046	Farmers Creek at Mt Walker	0.68	0.66	B	B
Upper Cox's	MMP280	Farmers Creek u/s STP at Geordie St	0.65	0.62	B	B
Upper Wollondilly	MMP27	Wollondilly River at Goonagulla	0.60	0.55	B	B
Upper Wollondilly	MMP281	Mount Wayo Creek at Fenwicks Creek Rd	0.64	0.81	B	A
Upper Wollondilly	MMP282	Sooley Creek at Crookwell Rd	0.68	0.53	B	B
Upper Wollondilly	Uwol1	Wollondilly River at Baw Baw Bridge	0.86	0.6	A	B
Werri Berri	E531	Werriberri Creek at Werombi	0.94	0.56	A	B
Wingecarribee	E301	Caalang Creek at Old Kangaloon Rd Ford	0.52	0.44	B	C
Wingecarribee	MMP283	Medway Rivulet at Cosh Park	0.77	0.60	B	B
Wingecarribee	MMP284	Whites Creek at Cosgrove Park	0.41	0.07	C	C
Wingecarribee	MMP285	Mittagong Creek at Mount Rd	0.37	0.21	C	C
Wingecarribee	U10	Wingecarribee River at Berrima	0.42	0.46	C	C
Wingecarribee	Winge2	Wingecarribee River at Greenstead	0.76	0.66	B	B
Wollondilly	E409	Wollondilly River at Murrays Flat	0.70	0.22	B	C
Wollondilly	E4122	Wollondilly at Upper Tarlo	0.79	NS	B	NS
Wollondilly	E450	Wollondilly River at Golden Valley	0.70	0.54	B	B
Wollondilly	E488	Wollondilly River at Jooriland	0.85	OEM	A	OEM
Wollondilly	E5001	Wollondilly river u/s Goulburn STP	0.68	0.53	B	B

Sub-catchment	Site	Site Name	OE50		Band Grade	
			FY24	FY25	FY24	FY25
Wollondilly	MMP130	Long Swamp Creek u/s Paddys River	0.55	0.50*	B	B*
Wollondilly	MMP226	Tarlo River at Swallowtail Pass	0.66	0.86	B	A
Tallowa						
Back and Round	MMP17	Shoalhaven River at Farringdon Crossing	0.89	0.65	A	B
Boro	E890	Boro Creek at Marlowe	0.63	0.34	B	C
Boro	MMP33	Kings Creek u/s of Boro Creek	0.93	0.64	A	B
Braidwood	E860	Shoalhaven River at Mount View	0.72	0.69	B	B
Braidwood	E891	Gillamatong Creek at Braidwood	OEM	OEM	OEM	OEM
Braidwood	MMP62	Jembaicumbene Creek at Bendoura	0.77	0.55	B	B
Bungonia	A8	Bungonia Creek at Bungonia	0.82	0.49	A	B
Bungonia	E847	Shoalhaven River at Fossickers Flat	0.82	0.69	A	B
Endrick	MMP12	Endrick River at Nerriga	0.61	0.58	B	B
Jerrabattagulla	MMP09	Jerrabattagulla Creek at Warragandra	0.82	0.57	A	B
Jerrabattagulla	MMP168	Jerrabattagulla Creek at Hereford Hall Rd	0.76	0.44	B	C
Jerrabattagulla	MMP273	Shoalhaven River at Wyanbene Rd	0.80	0.80	B	B
Jerrabattagulla	MMP67	Stoney Creek at Cooma Rd	0.83	0.58	A	B
Kangaroo	E300	Yarrunga Creek at Wildes Meadow	0.60	0.41	B	C
Kangaroo	E520	Bundanoon Creek at the Rocks	0.84	0.58	A	B
Kangaroo	E7021	Brogers Creek at Clinton Park	0.58	0.51	B	B
Kangaroo	E706	Kangaroo River at Hampden Bridge	0.59	0.60	B	B
Kangaroo	E7061	Kangaroo River at Oakdale	0.81	0.76	A	B
Mid Shoalhaven	E8311	Corang River	0.64	0.62	B	B
Mid Shoalhaven	E861	Shoalhaven River at Hillview	0.62	0.76	B	B
Mongarlowe	E822	Mongarlowe R. at Mongarlowe	0.74	0.61	B	B
Mongarlowe	MONG1	Mongarlowe River at Charleyong	0.73	0.45	B	B
Mongarlowe	R13	Mongarlowe River at Monga	0.85	0.58	A	B
Nerrimunga	E8361	Nerrimunga River at Minshull Trig	0.52	0.42	B	C
Nerrimunga	MMP51	Jacqua Creek at Lumley Road	0.73	0.46	B	B
Nerrimunga	MMP52	Nadgigomar Creek at Oallen Ford	0.40	0.37	C	C
Reedy	MMP194	Manar Creek at The Dip	0.79	0.58	B	B
Reedy	MMP258	Durran Durra Creek at Nerriga Road	0.60	0.36	B	C
Reedy	R7	Mulloon Creek at Tawarri	0.72	NS	B	NS
Reedy	REED1	Reedy Creek at Mayfield Road	0.78	0.59	B	B
Upper Shoalhaven	MMP06	Shoalhaven River at Yarra Glen	0.79	0.62	B	B
Metropolitan						
Upper Nepean	E6006	Sandy Creek inflow	0.61	NS	B	NS
Upper Nepean	E601	Nepean River at inflow to Lake Nepean	0.72	NS	B	NS
Upper Nepean	E602	Burke River at inflow to Lake Nepean	0.46	0.55	B	B
Upper Nepean	E604	Flying Fox Creek No 3	0.92	NS	A	NS
Upper Nepean	E608	Goondarrin Creek at Kemira 'D' cast	0.72*	NS	B*	NS
Upper Nepean	E609	Cataract River d/s Angels Creek	0.60*	NS	B*	NS
Upper Nepean	E610	Avon River Summit Tank	0.57	0.55*	B	B*
Upper Nepean	E680	Cordeaux River at causeway between Upper Cordeaux 1 & 2	0.78	0.38	B	C
Upper Nepean	E697	Nepean River at McGuire's Crossing	0.80	0.68	B	B
Upper Nepean	MMP100	Wongawilli Creek d/s Fire Road 6	0.65*	NS	B*	NS
Upper Nepean	MMP136	Lizard Creek d/s Fire Road 8H	0.76*	0.42	B*	C

Sub-catchment	Site	Site Name	OE50		Band Grade	
			FY24	FY25	FY24	FY25
Woronora & Blue Mountains						
Woronora	E677	Woronora River inflow	0.78	NS	B	NS
Woronora	E678	Waratah Rivulet at Flat Rock Crossing	0.95	0.64	A	B
Grose	MMP246	Woodford Creek u/s Woodford Dam	1.07	0.46	A	B

7.4 Investigative monitoring

WaterNSW's investigative monitoring program is designed to target known risks, emerging issues and inform management options. Investigative monitoring can be used for identifying pollution sources, understanding pollutant fate and transport in a variety of flow conditions and investigating the risk of pollutants reaching inflows and raw water offtake points. Investigative monitoring is also one means of evaluating the effectiveness of actions to address pollutants in the catchments and lakes.

7.4.1 Kedumba River trial of novel sampling techniques

The Strategic Research and Innovation Team commenced a 12-month field study to compare and analyse data derived from discrete grab, passive samplers (diffusive gradients in thin films – DGTs), and high resolution in-situ (NitraLED sensor) sampling techniques at the water quality monitoring site E157 Kedumba River.

The primary analytes of interest, metals and nitrates, were selected based on findings within the FY2022-23 Annual Water Quality Monitoring (AWQM) Report, as elevated Aluminium (Al) and Total Nitrogen (TN), including nitrate concentrations were found to routinely exceed recommended guideline values. Passive samplers and the in-situ probe also allow for data collection during rainfall and flooding events when catchment sites are otherwise inaccessible. This is significant as stream conditions and analyte concentrations can change rapidly during and post rainfall events potentially leading to long term step changes in overall water quality and ecological condition.

The "Kedumba Trial" of these novel and passive sampling technologies began in early May 2025 with passive samplers being deployed at monthly (approx. 28 day) intervals and the in-situ probe recording continuously data at 15-minute timesteps (Figure 8). Discrete grab samples were collected monthly during routine water monitoring visits. Preliminary results indicate that the metal passive samplers show different concentrations relative to the grab samples for both Total and Filtered metals (Figure 9) indicating passive samplers are capturing more "available" and biological relevant fractions of metals in solution. Similarly, early results indicate data from passive samplers for nitrate are also different than grab samples, likely indicating the impact of events-based system fluxes on nutrient loads. This is also reflected in the sensor data (Figure 10) which shows nitrates sharply rising as river flows increase following rainfall and then decreasing as water flow recede. That means sensor data successfully captures the nitrate dynamics during and after the high inflow events. Although the project is still in early data collection phases, these preliminary findings show promising results for better and more efficient water quality monitoring in the future. And the research benefits from this project are expected to tell us the best way to incorporate water monitoring data from different sampling techniques for a better understanding of the catchment dynamics.

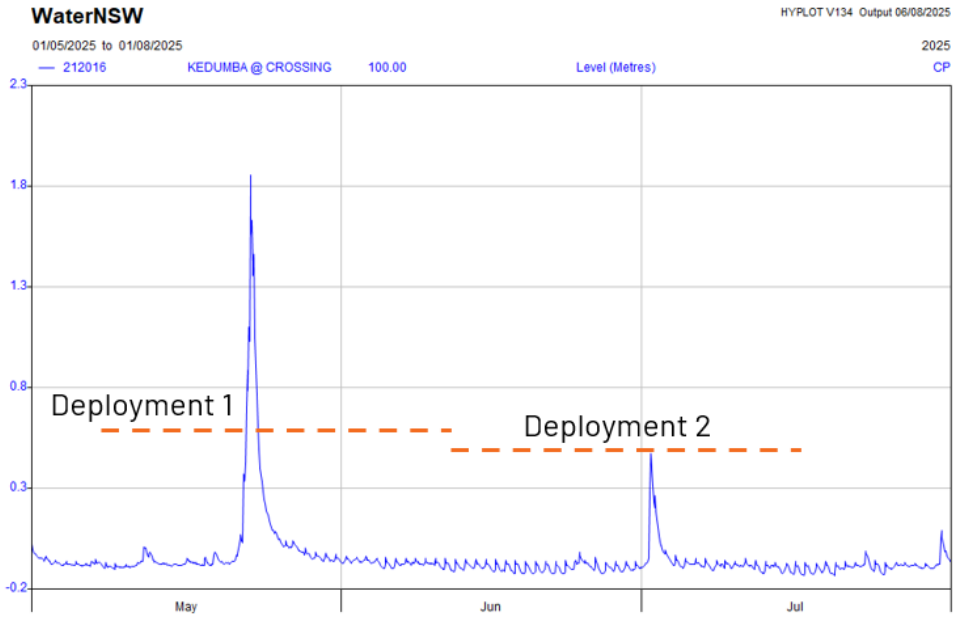


Figure 7.2 Hydrograph of Kedumba River during the first two deployments of DGTs passive samplers in May and June 2025.

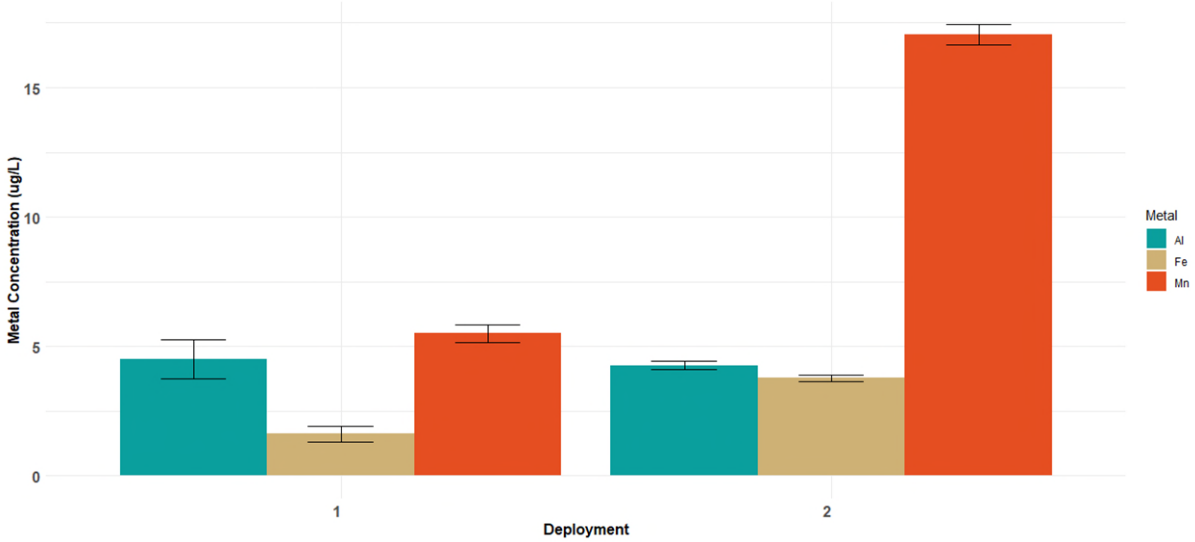


Figure 7.3 Results of the 1st and 2nd deployment of the DGT passive sampler for select metals also monitored via routine grab samples.

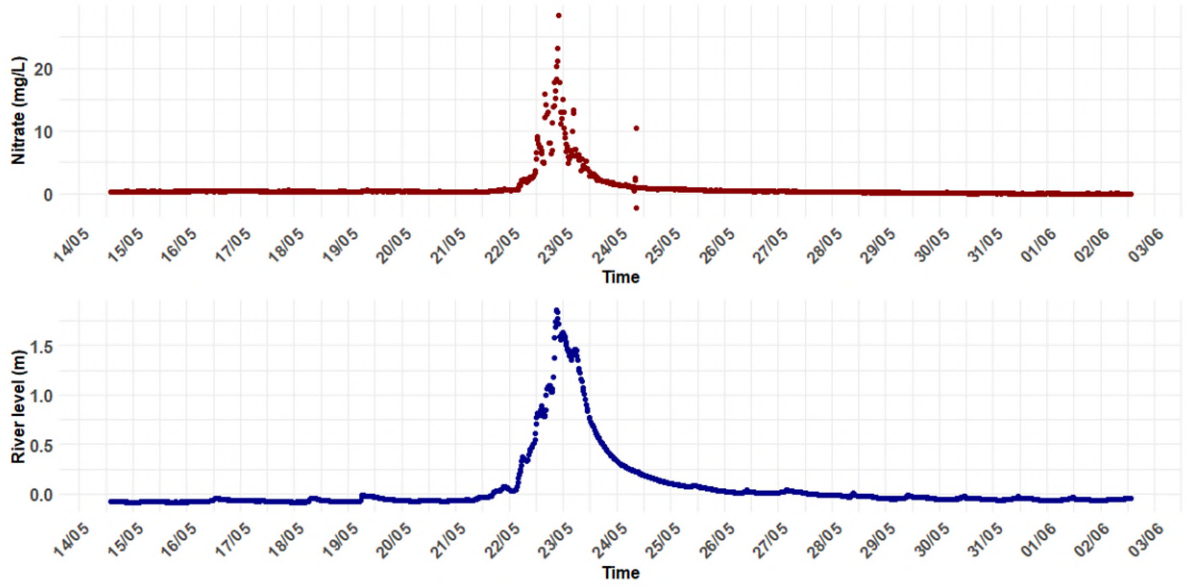


Figure 7.4 Sub-sample of real time in-situ NitraLED sensor data plotted against river level in later May 2025 before, during, and after a significant rainfall event at Kedumba.

7.4.2 PFAS investigation in the Blue Mountains

In June 2024, Sydney Water detected PFAS levels in treated drinking water at several sites across Greater Sydney. These levels were all below the Australian Drinking Water Guidelines 6, 2011 (Version 3.8). However, they were slightly elevated at the Cascade Water Filtration Plant in the Blue Mountains relative to other sites. WaterNSW began investigating PFAS in the Blue Mountains catchment from July 2024 using a comprehensive investigative water quality monitoring program. Early PFAS results from this monitoring identified that Medlow Dam (Lake Medlow) and Adams Creek were impacted by elevated levels of PFAS and as a precautionary measure, WaterNSW disconnected Medlow Dam and Greaves Creek Dam from the raw water supply system in August 2024 date. To offset this disconnection, the Cascades WFP also received water transferred from the Fish River Water Supply Scheme. This continues to be the case. All water treated by Sydney Water continued to meet the Australian Drinking Water Guidelines.

The preliminary investigation undertaken by WaterNSW involved the collection of over 250 water samples at 37 sites across the Blue Mountains catchments. This has since been updated to over 500 water samples and 17 soil or sediment samples at 42 sites in the Blue Mountains. WaterNSW engaged with a contaminated site investigation specialist, and the findings indicated three potential sources of contamination in the Medlow Dam catchment: a 1992 petrol tanker traffic incident, a 2002 diesel tanker traffic incident and the Medlow Bath Rural Fire Service station. Monitoring for PFAS will continue at key sites to better understand the presence of PFAS in the source water supplied for treatment. WaterNSW, along with several agencies including the EPA, are planning to conduct a detailed site investigation in FY26 to assess risks and guide future PFAS management in the Blue Mountains.

PFAS monitoring was also conducted on the raw water being supplied to Sydney Water's water filtration plants across Greater Sydney, with results available on the WaterNSW website:

https://www.waternsw.com.au/water-services/water-quality/pfas.

8 Incidents and events

Water quality incidents are managed in accordance with the WaterNSW Water Quality Incident Response Protocol. The protocol sets out agreed water quality trigger levels for various actions and notifications. Any issue that poses a potential risk to public health is reported to NSW Health immediately and incident responses are developed in consultation with NSW Health and relevant customers.

The Water Monitoring Program also specifies monitoring required in anticipation of events which pose potential threats to raw water quality, such as large inflow events and seasonal turnover in lakes. The pre-planned monitoring during periods leading to and during such events allows operational changes to be made proactively and prevents such events manifesting into more significant incidents.

During FY25, seven major, seven significant and 68 minor water quality incidents were recorded in the declared catchment area (see Appendix B for details of these incidents and actions taken by WaterNSW).

8.1 Major and significant water quality incidents

There were seven major incidents and seven significant incidents relating to water quality during FY25. Details of all incidents and their management are provided in Appendix B. Prompt notifications and effective incident response ensured no interruptions in the supply of high quality treated drinking water to customers. Incident management responses for major and significant incidents are discussed in detail below.

8.1.1 Exceedance of Raw Water Supply Agreement site specific standards

There were six results outside the relevant Raw Water Supply Agreement site specific standards during the year. Two of these were due to elevated algal ASU (an indicator of filter clogging potential) in raw water supplied to the Cascades Water Filtration Plant (March 2025) and the Prospect Water Filtration Plant (April 2025).

The remaining four results were at the inlet to the Kangaroo Valley Water Filtration Plant and were associated with the plant drawing in water during inflow events in Lake Yarrunga in December 2024 and April 2025. The December 2024 event recorded low pH, while April 2025 recorded low pH as well as elevated turbidity and colour.

Each instance was reported to the water filtration plant operators and supply configuration options to manage the relative level of risk were discussed and implemented.

9 Trend analysis (FY15-FY25)

Trend analysis identifies persistent changes in water quality parameters resulting from natural (e.g. rainfall, climatic variability) and anthropogenic (e.g. land-use and point source changes, catchment interventions) perturbations. Under the Reporting Manual, WaterNSW is required to include trend analysis in the FY25 report. Trend analysis for relevant catchment, storage, water filtration plant supply points, and downstream river sites for the FY15 - FY25 period are reported in the sections that follow. The sites and analytes included in the trend analysis were agreed by NSW Health and DCCEEW.

The trend analysis undertaken in FY25 adopts a Bayesian regression modelling approach which applies a more sophisticated statistical methodology than has been used for previous reports. This regression analysis incorporates climatic and hydrodynamic variables that influence water quality as well as seasonality, to better isolate the trend component associated with catchment influence (Hipel and McLeod 2005). For catchment sites, due to the more immediate responsiveness of water quality to weather events, daily streamflow was used as the variable representing natural climatic variability. For all other sites (storages, water filtration plants and downstream rivers) with a longer time-scale of response to prevailing conditions, the rainfall total over the past 12 months preceding a water quality observation was used as the variable to represent the natural climatic variability. This effectively presents trends that answer the question: given an average year of rainfall, what has the trend in an analyte been over the period of interest?

Samples from routine sampling were used, with those below the lower detection limit (LDL) sampled from a uniform distribution between 0 and the LDL. Where samples at multiple depths were available for a given day, these were aggregated either through a mixing model (in storages), a weighted average of the available samples using the volume represented by a given depth or taking a simple mean (other sites). Where data gaps comprised >20% of the total length of the period or there were less than 15 available data points, trend data has not been reported for the site or analyte. This may occur due to conditional analysis (algal speciation in catchments) or where an analyte is no longer routinely monitored.

The Bayesian model allows for the quantification of uncertainty in the estimated residual trend, in this case through a 90% credible interval. Where this interval overlaps zero, we have less confidence that there is a trend given the adopted model; where the interval does not overlap zero (either positive or negative), we have more confidence that there is a notable trend. Trends are reported in units of percentage change (positive increasing and negative decreasing) per annum.

Identified trends may not be of concern if:

a) The magnitude of the change is very small; and/or
b) The trend is not likely to result in the relevant guidelines/benchmarks being approached or exceeded. For relevant guidelines/ benchmarks refer to Section 4 (Applicable guidelines and benchmarks)

The tables in the following sections summarise identified trends. Sites are colour coded based on the following criteria:

Table 9.1: Trend results notation

Notation	Direction	Description
	Improving water quality trend	Notable water quality trend, of higher importance as the site and analyte frequently (>50%) exceeded benchmark levels in FY25.
	Deteriorating water quality trend	
	Improving water quality trend	Notable water quality trend, of lower importance as the site and analyte did not frequently (≤50%) exceed benchmark levels in FY25 (or did not have a benchmark level specified).
	Deteriorating water quality trend	
	-	No notable water quality trend, whereby the 90% credible interval of the trend overlapped zero
NA	-	Insufficient dataset for trend analysis

9.1 Warragamba system

Table 9.2: Trend results for Warragamba – Adjusted for climatic variability

Site	Algal ASU - Total (ASU/mL)	Algal Count - Toxic Total (cells/mL)	Aluminium Total (mg/L)	Chlorophyll-a (ug/L)	Conductivity @25 C - Field (mS/cm)	Dissolved Oxygen - Field (%Sat)	E. coli (orgs/100mL)	Iron Filtered (mg/L)	Iron Total (mg/L)	Manganese Filtered (mg/L)	Manganese Total (mg/L)	Nitrogen Total (mg/L)	Phosphorus Total (mg/L)	Total Alkalinity as CaCO3 (mg/L)	Total Hardness as CaCO3 (mg/L)	True Colour at 400nm	Turbidity - Field (NTU)
Catchments																	
E083																	
E130	NA	NA															
E157	NA	NA										^					
E203			^									^	^				
E206												^					
E210			^									^					
E243	NA	NA															
E409			^	^	^	^						^	^				
E450			^	^	^							^	^				
E488			^		^							^					
E531			^			^											
Storages																	
DWA12	NA	NA										^					
DWA2												^					
DWA27	NA	NA										^					
DWA9												^					
RPR1			^	^													
Water Filtration Plants																	
HBR1				NA								NA	NA				
HWA2				NA								NA	NA				
PWFP10				NA								NA	NA				

^ Site and analyte with frequent exceedance (>50%) of benchmark

Analysis of the catchment streams of Lake Burragorang showed some notable deteriorating 10-year trends, mostly along the Wollondilly River (E409, E450 and E488). Of these, the largest deteriorating trends were observed in Total Aluminium and Chlorophyll-a, with smaller trends in Total Nitrogen and Conductivity. Trends in Total Aluminium at E409 were partially explained by variable rainfall patterns over the period of analysis, though there was still some residual trend. Sites E203 and E531 showed an improvement in the underlying Total Aluminium trend, with analyte values at E531 more sensitive to streamflow variability over the period.

The Warragamba system storage sites were found to have a more consistent deteriorating underlying trend across most analytes for the sites considered. Deteriorating water quality trends in Lake Burragorang were evident even after accounting for the influence of rainfall, and were among the largest in magnitude for metals, Total Nitrogen and Turbidity for sites considered in this report. The impact of the 2019 to 2020 bushfires at Lake Burragorang relative to other locations could be a factor in these trends. Deteriorating water quality trends were

observed at all Lake Burragorang sites in Total Nitrogen where benchmark exceedances were noted for >50% of observations in FY25. Water quality as measured by these analytes showed a worsening result after the bushfires that has persisted through a period of above average rainfall. More broadly across the catchment sites, except where noted above, improving or stable water quality trends were present for the most part in Total Aluminium, Dissolved Oxygen, and Total Nitrogen analytes. Prospect Reservoir (RPR1) had notable deteriorating trends for both Total Aluminium and Chlorophyll-a where benchmark exceedances were noted for >50% of observations in FY25. The trends in the storages were mirrored at the water filtration plant sites; however, the analyte values remain well below benchmark guidelines.

9.2 Upper Nepean system

Table 9.3: Trend results for Upper Nepean – Adjusted for climatic variability

Site	Algal ASU - Total (ASU/mL)	Algal Count - Toxic Total (cells/mL)	Aluminium Total (mg/L)	Chlorophyll-a (ug/L)	Conductivity @25 C - Field (mS/cm)	Dissolved Oxygen - Field (%Sat)	E. coli (orgs/100mL)	Iron Filtered (mg/L)	Iron Total (mg/L)	Manganese Filtered (mg/L)	Manganese Total (mg/L)	Nitrogen Total (mg/L)	Phosphorus Total (mg/L)	Total Alkalinity as CaCO3 (mg/L)	Total Hardness as CaCO3 (mg/L)	True Colour at 400nm	Turbidity - Field (NTU)
Catchments																	
E602	NA	NA	^														
E609	NA	NA	^			^											
E610	NA	NA															
E680																	
Storages																	
DAV1	NA	NA															
DAV7																	
DCA1			^														
DCO1				^													
DNE2			^									^	^				
Water Filtration Plants																	
HMAC1				NA								NA	NA				
HNED				NA								NA	NA				
IWFP-R				NA								NA	NA				

^ Site and analyte with frequent exceedance (>50%) of benchmark

The Upper Nepean catchment streams showed improving trends across many parameters including Total Aluminium, E. coli, and Turbidity. There was a notable improving trend for total aluminium in the Burke River inflow to Lake Nepean (E602), with continued reductions likely to reduce the 67% benchmark exceedances that were recorded in FY25. A deteriorating trend was recorded at all Upper Nepean catchment sites for Dissolved Oxygen, particularly at the Cataract River (E609) with this site recording 100% benchmark exceedances below the lower guideline level in FY25.

The Upper Nepean storages showed small deteriorating trends across a number of parameters, with the largest deteriorating trends in Iron. Notable deteriorating trends were found in Dissolved Oxygen at Lake Cataract (DCA1), Lake Cordeaux (DCO1) and Lake Avon (DAV1 and DAV7), however there were <50% benchmark exceedances in FY25. While Lake Nepean (DNE2) had >50% benchmark exceedances for Total Aluminium, Total Nitrogen and Total Phosphorous, no notable trends were found in these parameters over the period of analysis once rainfall variability was considered. Lake Cataract (DCA1) had >50% benchmark exceedances for Total Aluminium, with a notable deteriorating trend. In general, the lakes showed a mix of deteriorating and improving water quality across measured parameters.

The Upper Nepean water filtration plants recorded deteriorating water quality trends in Algal ASU, Dissolved Oxygen and Iron but recorded zero benchmark exceedances in FY25 and remain well within benchmark guidelines. Improving trends were evident for conductivity and hardness at Macarthur WFP (HMAC1) and Illawarra WFP (IWFP-R).

9.3 Woronora system

Table 9.4: Trend results for Woronora – Adjusted for climatic variability

Site	Algal ASU - Total (ASU/mL)	Algal Count - Toxic Total (cells/mL)	Aluminium Total (mg/L)	Chlorophyll-a (ug/L)	Conductivity @25 C - Field (mS/cm)	Dissolved Oxygen - Field (%Sat)	E. coli (orgs/100mL)	Iron Filtered (mg/L)	Iron Total (mg/L)	Manganese Filtered (mg/L)	Manganese Total (mg/L)	Nitrogen Total (mg/L)	Phosphorus Total (mg/L)	Total Alkalinity as CaCO3 (mg/L)	Total Hardness as CaCO3 (mg/L)	True Colour at 400nm	Turbidity - Field (NTU)
Catchments																	
E677	NA	NA	^			^											
Storages																	
DW01			^														
Water Filtration Plants																	
HW01-A				NA								NA	NA				

^ Site and analyte with frequent exceedance (>50%) of benchmark

At the catchment site on the Woronora River (E677), a notable improving trend was found for Total Aluminium and no notable trend for Dissolved Oxygen. A notable deteriorating trend was recorded in Lake Woronora (DW01) for Total Aluminium, with 100% benchmark exceedances in FY25. A mixture of improving and deteriorating water quality trends were found at the Woronora filtration plant supply point (HW01-A), but these were not associated with any benchmark exceedances.

9.4 Blue Mountains system

Table 9.5: Trend results for Blue Mountains – Adjusted for climatic variability

Site	Algal ASU - Total (ASU/mL)	Algal Count - Toxic Total (cells/mL)	Aluminium Total (mg/L)	Chlorophyll-a (ug/L)	Conductivity @25 C - Field (mS/cm)	Dissolved Oxygen - Field (%Sat)	E. coli (orgs/100mL)	Iron Filtered (mg/L)	Iron Total (mg/L)	Manganese Filtered (mg/L)	Manganese Total (mg/L)	Nitrogen Total (mg/L)	Phosphorus Total (mg/L)	Total Alkalinity as CaCO3 (mg/L)	Total Hardness as CaCO3 (mg/L)	True Colour at 400nm	Turbidity - Field (NTU)
Storages																	
DGC1			^			^											
DTC1						^											
Water Filtration Plants																	
HCSR				NA								NA	NA				

^ Site and analyte with frequent exceedance (>50%) of benchmark

At both Lake Greaves (DGC1) and Upper Cascade Lake (DTC1), improving trends in Dissolved Oxygen were observed; however, >50% of samples were benchmark exceedances below the lower guideline level in FY25. Aluminium Total at Lake Greaves (DGC1) showed no notable trend; however, with 100% benchmark exceedances in the FY25 period.

9.5 Shoalhaven system

Table 9.6: Trend results for Shoalhaven – Adjusted for climatic variability

Site	Algal ASU - Total (ASU/mL)	Algal Count - Toxic Total (cells/mL)	Aluminium Total (mg/L)	Chlorophyll-a (ug/L)	Conductivity @25 C - Field (mS/cm)	Dissolved Oxygen - Field (%Sat)	E. coli (orgs/100mL)	Iron Filtered (mg/L)	Iron Total (mg/L)	Manganese Filtered (mg/L)	Manganese Total (mg/L)	Nitrogen Total (mg/L)	Phosphorus Total (mg/L)	Total Alkalinity as CaCO3 (mg/L)	Total Hardness as CaCO3 (mg/L)	True Colour at 400nm	Turbidity - Field (NTU)
Catchments																	
E706			^									^	^				
E847	NA	NA	^														
Storages																	
DTA1			^									^	^				
DTA8			^	^								^	^				
DWI1			^	^								^	^				
Water Filtration Plants																	
HKV1				NA								NA	NA				
HWI1				NA								NA	NA				

^ Site and analyte with frequent exceedance (>50%) of benchmark

Across the Shoalhaven catchment sites, for sites where >50% benchmark exceedances were recorded for Total Aluminium in FY25, no notable trend was observed on the Kangaroo River (E706) and in Lake Yarrunga at the dam wall (DTA1). A small improving trend was observed on the Shoalhaven River upstream of Lake Yarrunga (E847) and at Wingecarribee Lake (DWI1). A deteriorating trend was observed in Lake Yarrunga on the Kangaroo River arm near Bendeela Pondage (DTA8), and an improving trend was observed in the Shoalhaven River arm (E847).

For sites where >50% benchmark exceedances were recorded for Total Nitrogen in FY25, no notable trends were observed on the Kangaroo River (E706) and in Lake Yarrunga (DTA1 and DTA8). Wingecarribee Lake (DWI1) showed a slight improving trend. For Total Phosphorous, Kangaroo River (E706) and Lake Yarrunga (DTA1 and DTA8) sites showed a deteriorating trend, again indicative of water quality differences on the east-west arms of Lake Yarrunga. Benchmark exceedances for Chlorophyll-a remained high at Wingecarribee Lake (DWI1, 83% in FY25) and Lake Yarrunga on the Kangaroo River arm (DTA8, 75% in FY25), though notable improving trends were observed for this analyte at both sites over the period.

9.6 Downstream sites

Table 9.7: Trend results for downstream sites – Adjusted for climatic variability

Site	Algal ASU - Total (ASU/mL)	Algal Count - Toxic Total (cells/mL)	Aluminium Total (mg/L)	Chlorophyll-a (ug/L)	Conductivity @25 C - Field (mS/cm)	Dissolved Oxygen - Field (%Sat)	E. coli (orgs/100mL)	Iron Filtered (mg/L)	Iron Total (mg/L)	Manganese Filtered (mg/L)	Manganese Total (mg/L)	Nitrogen Total (mg/L)	Phosphorus Total (mg/L)	Total Alkalinity as CaCO3 (mg/L)	Total Hardness as CaCO3 (mg/L)	True Colour at 400nm	Turbidity - Field (NTU)
Downstream Sites																	
E851															NA		
G0515															NA		
N57				^								^			NA		

^ Site and analyte with frequent exceedance (>50%) of benchmark

Nepean River at Penrith (site N57) showed mostly improving trends in the reported analytes; however, Total Nitrogen values showed a deteriorating trend where benchmark exceedances were recorded in 75% of samples collected in FY25. No notable trend was observed in Chlorophyll-a at N57 where 58% of samples exceeded the benchmark in FY25.

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Annual Water Quality Monitoring Report

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Appendices

Appendices contents

Appendix A Statistical summaries

1. Warragamba system

Table A1 Warragamba system – catchments – part 1

		Physicochemical															Nutrients						
Site Code	Statistic	Total Alkalinity as CaCO3 (mg/L)	Conductivity @25 C - Field (mS/cm)	Dissolved Organic Carbon (mg/L)	Dissolved Oxygen - Field (%Sat)	Dissolved Oxygen - Field (mg/L)	pH - Field	Sulphate (mg/L)	Suspended Solids (mg/L)	Temperature - Field (Deg C)	Total Hardness as CaCO3 (mg/L)	Total Organic Carbon (mg/L)	True Colour at 400nm (PES filter)	True Colour at 420nm (PES filter)	Turbidity - Field (NTU)	UV Absorbance @ 254nm	Nitrogen Ammoniacal (mg/L)	Nitrogen Oxidised (mg/L)	Nitrogen TKN (mg/L)	Nitrogen Total (mg/L)	Phosphorus Soluble Reactive (mg/L)	Phosphorus Total (mg/L)	Reactive Silica (mg/L)
E0114	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	53	0.111	3.7	80.3	7.03	6.72	48	<1	8.439	59	3.6	6	14	0.04	0.092	0.005	0.017	0.22	0.29	<0.001	<0.005	0.84
	Median	59.5	0.3055	4.3	88.15	8.9	7.755	63.5	<1	15.27	66.85	4.3	8	16	0.815	0.103	0.0105	0.062	0.265	0.34	0.0015	0.009	1.895
	Max	64	0.33	5	98	11.48	7.98	74	7	22.5	71.3	5	9	21	8.72	0.134	0.027	0.149	0.38	0.42	0.004	0.029	3.12
	Above Guideline	-	0	-	0	-	0	-	-	-	-	-	-	-	0	-	4	12	-	12	0	2	-
	Below Guideline	-	-	-	7	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E0115	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	64	0.304	3	90.6	7.77	7.85	104	<1	6.82	96.1	3	5	12	0.18	0.08	<0.005	<0.002	0.21	0.23	<0.001	<0.005	1.44
	Median	76	0.4855	4.25	96.25	9.82	8.09	137.5	1	13.995	124	4.1	7.5	16	1.565	0.096	0.0215	0.011	0.275	0.28	0.002	0.0095	2.545
	Max	98	0.602	6.6	101.8	12.33	8.43	302	29	23.48	239	6.6	15	33	6.24	0.2	0.03	0.069	0.43	0.44	0.003	0.026	4.72
	Above Guideline	-	10	-	0	-	7	-	-	-	-	-	-	-	0	-	8	4	-	9	0	3	-
	Below Guideline	-	-	-	0	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E0321	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	44	0.314	2.3	10.2	6.79	7.6	86	<1	7.258	77.4	2.3	5	10	0.88	0.068	<0.005	<0.002	0.12	0.19	<0.001	0.006	1.94
	Median	115.5	0.777	4.05	92.45	9.255	7.81	220	4	14.04	182.5	4.2	9.5	22	5.015	0.1305	0.0175	0.02	0.275	0.3	0.0025	0.023	4.265
	Max	181	1.294	6.6	109.2	12.44	8.64	490	7	23.31	357	5.9	19	42	9.41	0.239	0.048	0.079	0.47	0.51	0.004	0.036	8.09
	Above Guideline	-	11	-	0	-	5	-	-	-	-	-	-	-	0	-	7	6	-	9	0	8	-
	Below Guideline	-	-	-	5	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E046	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	30	0.088	2.1	86	7.76	7.68	14	<1	5.74	28	2.1	4	10	0.66	0.063	<0.005	0.114	<0.05	0.45	0.003	<0.005	4.63
	Median	47.5	0.188	2.8	93.7	9.985	7.84	24	2	11.665	38.05	2.7	8	18	2.015	0.0775	<0.005	0.4665	0.205	0.66	0.006	0.0235	7.415
	Max	63	0.259	4.1	102.4	12.55	8.4	41	6	24.6	43.4	4	12	26	5.47	0.14	0.031	1.54	0.43	1.58	0.013	0.04	10.4
	Above Guideline	-	0	-	0	-	3	-	-	-	-	-	-	-	0	-	5	12	-	12	0	10	-
	Below Guideline	-	-	-	4	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E073	n	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
	Min	56	0.241	4.1	91.1	7.97	7.78	36	<1	8.05	59	4	8	18	0.98	0.102	<0.005	0.006	0.21	0.25	<0.001	0.009	3.17
	Median	65	0.297	4.8	94.7	10.18	8	56	2	13.8	69.7	4.7	11	24	3.07	0.132	0.017	0.021	0.29	0.32	0.003	0.018	3.79
	Max	72	0.56	7.4	104.1	12.27	8.44	68	18	23.64	76.5	7	18	41	15.96	0.271	0.031	0.127	0.46	0.53	0.006	0.057	6.16
	Above Guideline	-	1	-	0	-	5	-	-	-	-	-	-	-	0	-	7	8	-	10	0	3	-
	Below Guideline	-	-	-	0	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E083	n	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	12	12	12	12	12	12
	Min	41	0.123	1.4	95.9	8.53	7.43	9	<1	9.14	34.7	1.4	5	10	0.57	0.046	<0.005	0.003	0.09	0.1	0.002	0.006	6.97
	Median	43.5	0.155	2.15	102.05	9.505	7.69	12	1.5	19.565	41.8	2.2	6.5	14	1.01	0.068	<0.005	0.0145	0.12	0.14	0.0035	0.01	8.335
	Max	72	0.383	3.8	109.2	11.48	8.2	21	7	26.354	68.8	3.8	13	29	1.32	0.125	0.012	0.074	0.2	0.23	0.006	0.019	10.6
	Above Guideline	-	1	-	0	-	3	-	-	-	-	-	-	-	0	-	0	6	-	0	0	0	-
	Below Guideline	-	-	-	0	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

		Physicochemical															Nutrients						
Site Code	Statistic	Total Alkalinity as CaCO3 (mg/L)	Conductivity @25 C - Field (mS/cm)	Dissolved Organic Carbon (mg/L)	Dissolved Oxygen - Field (%Sat)	Dissolved Oxygen - Field (mg/L)	pH - Field	Sulphate (mg/L)	Suspended Solids (mg/L)	Temperature - Field (Deg C)	Total Hardness as CaCO3 (mg/L)	Total Organic Carbon (mg/L)	True Colour at 400nm (PES filter)	True Colour at 420nm (PES filter)	Turbidity - Field (NTU)	UV Absorbance @ 254nm	Nitrogen Ammoniacal (mg/L)	Nitrogen Oxidised (mg/L)	Nitrogen TKN (mg/L)	Nitrogen Total (mg/L)	Phosphorus Soluble Reactive (mg/L)	Phosphorus Total (mg/L)	Reactive Silica (mg/L)
E130	n	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	12	12	12	12	12	12
	Min	25	0.07	1.1	94	7.89	7.34	1	<1	9.06	20.6	1	4	9	0.7	0.042	<0.005	0.005	0.06	0.1	0.002	<0.005	6.67
	Median	31.5	0.0865	1.7	98.15	9.685	7.46	2	3	19.938	24.8	1.7	6	13.5	1.03	0.057	0.006	0.032	0.11	0.14	0.003	0.012	8.275
	Max	54	0.397	3.6	112.8	11.75	7.81	3	8	25.356	43.3	3.8	15	36	2.27	0.143	0.022	0.112	0.18	0.26	0.006	0.018	9.54
	Above Guideline	-	1	-	1	-	0	-	-	-	-	-	-	-	0	-	2	9	-	1	0	0	-
	Below Guideline	-	-	-	0	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E157	n	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	11	11	11	11	11	11
	Min	13	0.067	1.4	87.6	7.95	6.9	3	<1	8.67	13.1	1.3	6	14	0.54	0.058	<0.005	0.088	0.01	0.22	<0.001	<0.005	4.21
	Median	16	0.076	2.2	94.6	8.96	7.03	4	2	17.496	17.1	2.1	11	25	1.355	0.097	0.008	0.213	0.1	0.28	0.002	0.006	5.22
	Max	18	0.106	3.6	101.4	11.09	7.19	11	9	25.67	25.3	3.6	18	40	3.1	0.144	0.028	0.346	0.15	0.43	0.005	0.014	5.83
	Above Guideline	-	0	-	0	-	0	-	-	-	-	-	-	-	0	-	1	11	-	8	0	0	-
	Below Guideline	-	-	-	2	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E203	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	35	0.129	3.1	88.7	7.99	7.4	4	<1	8.189	33.9	3.2	12	25	2.78	0.125	0.013	0.125	0.06	0.38	0.005	0.014	3.88
	Median	63	0.2725	4.55	97.85	9.995	7.605	11	2	14.643	72.9	4.5	14	31.5	5.01	0.178	0.0445	0.4715	0.255	0.7	0.0075	0.031	5.94
	Max	74	0.415	5.6	110.4	11.07	7.88	45	19	22.046	88.2	5.8	20	45	26.27	0.294	0.327	4.93	1.05	5.61	0.012	0.094	7.56
	Above Guideline	-	1	-	1	-	0	-	-	-	-	-	-	-	1	-	11	12	-	12	0	9	-
	Below Guideline	-	-	-	3	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E206	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	36	0.227	2.9	88.7	7.94	7.52	8	<1	6.673	48	2.8	9	19	0.42	0.08	<0.005	0.373	0.18	0.66	0.002	<0.005	2.36
	Median	44.5	0.2655	3.75	98.5	9.84	7.67	16.5	1	14.349	59.25	3.7	11	23.5	1.56	0.1095	0.0095	0.6775	0.235	0.905	0.004	0.0125	3.54
	Max	50	0.305	5.9	111.6	12.13	8.12	31	5	20.735	74.4	5.9	27	60	8.93	0.268	0.019	1.75	0.46	1.94	0.004	0.027	5.48
	Above Guideline	-	0	-	1	-	1	-	-	-	-	-	-	-	0	-	3	12	-	12	0	2	-
	Below Guideline	-	-	-	1	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E210	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	36	0.273	0.7	86.1	7.53	7.43	19	<1	9.6	52.4	0.7	6	13	2.7	0.077	0.005	0.025	0.12	0.17	<0.001	<0.005	3.24
	Median	53	0.3125	2.7	99.85	9.1	7.735	25.5	3.5	18.645	75.6	2.75	7.5	16.5	5.51	0.097	0.0105	0.0925	0.16	0.26	0.004	0.0085	4.89
	Max	66	0.364	3.4	105.7	11.61	7.94	37	11	27.59	92	3.4	9	20	9.65	0.14	0.032	0.317	0.2	0.48	0.006	0.017	6.08
	Above Guideline	-	3	-	0	-	0	-	-	-	-	-	-	-	0	-	4	12	-	6	0	0	-
	Below Guideline	-	-	-	1	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E243	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	2	0.102	0.8	93.6	7.99	6.55	<1	<1	8.39	9.2	0.7	<1	2	0.24	0.016	<0.005	0.008	<0.01	0.02	<0.001	<0.005	4.56
	Median	3	0.125	1	96.75	9.05	6.685	1	<1	18.853	12.55	1.05	2	4	0.47	0.022	<0.005	0.016	0.06	0.07	0.0025	<0.005	5.465
	Max	89	0.144	2.2	99.4	11.43	6.89	2	19	23.926	79	2.9	3	9	1	0.041	0.011	0.09	0.08	0.2	0.06	0.07	6.06
	Above Guideline	-	0	-	0	-	0	-	-	-	-	-	-	-	0	-	0	7	-	0	1	1	-
	Below Guideline	-	-	-	0	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E306	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	60	0.247	2.6	55	5.02	7.19	5	1	8.167	72.2	2.6	9	20	6.04	0.134	0.011	0.011	0.25	0.35	0.004	0.021	2.83
	Median	78.5	0.314	5.65	75.65	7.09	7.405	8	11.5	14.675	82.8	5.65	14.5	32	11.275	0.246	0.0855	0.2405	0.48	0.705	0.006	0.0415	8.27
	Max	123	0.444	8.3	114	11.62	7.94	13	51	23.205	131	8.2	23	49	40.08	0.425	0.463	0.398	0.78	1.16	0.013	0.118	11.1
	Above Guideline	-	3	-	1	-	0	-	-	-	-	-	-	-	3	-	11	11	-	12	0	12	-
	Below Guideline	-	-	-	11	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E3151	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	89	0.429	5.1	30.3	2.73	7.06	30	7	8.005	108	5.2	12	27	5.82	0.166	0.007	0.841	0.36	1.63	0.02	0.055	2.27
	Median	107	0.5685	6.7	59.465	5.79	7.4	51	15.5	14.273	132	6.8	15.5	33	12.01	0.221	0.049	2.705	0.79	3.36	0.035	0.113	5.76
	Max	134	0.639	9.2	83.3	9.81	7.65	85	37	20.393	175	9.2	21	45	20.99	0.324	0.333	4.82	1.15	5.64	0.351	0.487	10
	Above Guideline	-	12	-	0	-	0	-	-	-	-	-	-	-	0	-	11	12	-	12	12	12	-

		Physicochemical															Nutrients						
Site Code	Statistic	Total Alkalinity as CaCO3 (mg/L)	Conductivity @25 C - Field (mS/cm)	Dissolved Organic Carbon (mg/L)	Dissolved Oxygen - Field (%Sat)	Dissolved Oxygen - Field (mg/L)	pH - Field	Sulphate (mg/L)	Suspended Solids (mg/L)	Temperature - Field (Deg C)	Total Hardness as CaCO3 (mg/L)	Total Organic Carbon (mg/L)	True Colour at 400nm (PES filter)	True Colour at 420nm (PES filter)	Turbidity - Field (NTU)	UV Absorbance @ 254nm	Nitrogen Ammoniacal (mg/L)	Nitrogen Oxidised (mg/L)	Nitrogen TKN (mg/L)	Nitrogen Total (mg/L)	Phosphorus Soluble Reactive (mg/L)	Phosphorus Total (mg/L)	Reactive Silica (mg/L)
	Below Guideline	-	-	-	12	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E332	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	30	0.131	5.5	73.7	7.04	6.79	4	6	8.541	25.1	5.5	12	26	5.28	0.202	<0.005	<0.002	0.4	0.74	<0.001	0.032	<0.05
	Median	52.5	0.25	6.85	87.9	8.425	7.59	9.5	12.5	15.984	58.85	6.6	17	37.5	14.205	0.2885	0.031	0.2395	0.75	0.93	0.0035	0.056	2.955
	Max	64	0.314	17.8	108.2	12.06	8.05	22	28	24.053	73.5	17.6	54	118	56.12	0.885	0.132	0.634	1.58	1.77	0.011	0.125	5.74
	Above Guideline	-	0	-	0	-	1	-	-	-	-	-	-	-	2	-	9	11	-	12	0	12	-
	Below Guideline	-	-	-	7	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E409	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	60	0.365	6	58.6	5.26	7.23	17	5	5.548	90.9	6	12	25	4.36	0.167	0.016	<0.002	0.38	0.67	<0.001	0.017	0.64
	Median	119	0.7215	9.7	84	8.805	7.855	33.5	15.5	17.775	165.5	9.8	21.5	46	12.31	0.3265	0.0325	0.1465	0.9	1.13	0.0065	0.0615	2.795
	Max	153	0.934	15.6	117.6	11.81	8.54	88	63	23.878	207	14.7	49	105	24.23	0.619	0.104	0.761	1.24	1.5	0.017	0.111	8.12
	Above Guideline	-	12	-	1	-	2	-	-	-	-	-	-	-	0	-	12	7	-	12	2	10	-
	Below Guideline	-	-	-	8	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E4122	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	51	0.361	5	59.4	5.53	7.31	7	2	4.768	97.4	5	11	24	2.76	0.145	0.008	<0.002	0.26	0.26	<0.001	0.009	2.21
	Median	106	0.4905	9.05	76.835	7.48	7.8175	13.5	5	13.924	142.5	9.1	24	53	5.355	0.305	0.0265	0.019	0.505	0.525	0.0035	0.0175	7.36
	Max	150	0.622	12.9	91	11.23	8.93	24	27	20.161	194	13.8	47	92	27.82	0.565	0.066	0.065	0.75	0.8	0.015	0.053	11.4
	Above Guideline	-	12	-	0	-	2	-	-	-	-	-	-	-	1	-	11	7	-	12	0	5	-
	Below Guideline	-	-	-	9	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E433	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	15	0.159	3.8	65.1	5.83	7	4	2	6.046	24.6	3.8	11	25	2.71	0.183	<0.005	0.002	0.16	0.26	<0.001	0.006	1.34
	Median	18.5	0.1865	6.35	86.15	8.1975	7.24	6	3.5	16.388	33.4	6.4	25	53.5	4.22	0.279	0.025	0.0145	0.3	0.34	0.003	0.022	5.185
	Max	26	0.361	10.7	94.2	10.84	8.18	7	8	23.599	55.9	10.9	43	92	16.64	0.475	0.057	0.113	0.52	0.55	0.009	0.033	6.86
	Above Guideline	-	1	-	0	-	1	-	-	-	-	-	-	-	0	-	10	6	-	12	0	6	-
	Below Guideline	-	-	-	10	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E450	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	39	0.243	6.2	88.2	7.49	7.48	8	4	7.2	48.8	6.2	16	35	3.84	0.229	<0.005	<0.002	0.33	0.39	<0.001	0.015	1.54
	Median	67.5	0.424	8.8	96.6	9.925	7.885	14	10	16.417	98.2	9.05	28	60.5	7.47	0.3125	0.0245	0.0235	0.655	0.675	0.004	0.0255	5.075
	Max	96	0.655	14	107	11.36	8.34	19	38	23.423	145	12.4	56	123	22.61	0.577	0.041	0.338	0.96	1.09	0.008	0.091	7.13
	Above Guideline	-	10	-	0	-	4	-	-	-	-	-	-	-	0	-	10	9	-	12	0	11	-
	Below Guideline	-	-	-	2	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E457	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	94	0.84	10	61.9	5.92	7.55	32	3	5.185	210	10.2	13	28	1.95	0.272	<0.005	<0.002	0.93	0.96	0.003	0.054	0.38
	Median	128	1.1725	12.15	80.6	8.07	7.94	42.5	7.5	14.189	270.5	12.05	20	42	4.36	0.3405	0.025	0.0235	1.175	1.22	0.0185	0.0745	2.65
	Max	160	1.282	16.2	104.9	10.69	8.83	51	15	22.089	301	15.8	48	92	9.79	0.587	2.48	1.21	3.72	4.93	0.223	0.338	5.14
	Above Guideline	-	12	-	0	-	4	-	-	-	-	-	-	-	0	-	8	7	-	12	8	12	-
	Below Guideline	-	-	-	10	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E488	n	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	12	12	12	12	12	12
	Min	61	0.172	4.3	90.7	7.51	7.16	7	1	9.41	74.7	4.4	10	21	0.83	0.136	<0.005	<0.002	0.31	0.31	<0.001	0.012	3.41
	Median	100.5	0.3945	5.8	102.05	9.48	8.145	13.5	5	21.842	110.5	6.05	18	39	3.09	0.2075	0.006	0.0225	0.385	0.44	0.002	0.013	7.11
	Max	131	0.48	8.8	121.3	12.03	8.41	20	47	26.557	150	9.1	33	72	21.45	0.451	0.02	0.183	0.57	0.68	0.007	0.033	10.5
	Above Guideline	-	9	-	2	-	7	-	-	-	-	-	-	-	0	-	1	7	-	12	0	3	-
	Below Guideline	-	-	-	0	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E490	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	75	0.287	8.4	62.9	5.76	7.6	9	3	4.941	99.2	8.4	19	41	2.06	0.255	<0.005	<0.002	0.52	0.52	<0.001	0.012	1.72
	Median	106.5	0.4835	10.15	85.15	8.85	7.93	14	5.5	15.557	141.5	10.15	24.5	55	7.385	0.3325	0.022	0.0065	0.68	0.7	0.005	0.032	4.715
	Max	129	0.574	13.9	105.8	10.87	8.85	18	30	20.834	165	13	44	94	39.72	0.572	0.05	0.122	0.9	0.91	0.01	0.052	11.6

		Physicochemical															Nutrients						
Site Code	Statistic	Total Alkalinity as CaCO3 (mg/L)	Conductivity @25 C - Field (mS/cm)	Dissolved Organic Carbon (mg/L)	Dissolved Oxygen - Field (%Sat)	Dissolved Oxygen - Field (mg/L)	pH - Field	Sulphate (mg/L)	Suspended Solids (mg/L)	Temperature - Field (Deg C)	Total Hardness as CaCO3 (mg/L)	Total Organic Carbon (mg/L)	True Colour at 400nm (PES filter)	True Colour at 420nm (PES filter)	Turbidity - Field (NTU)	UV Absorbance @ 254nm	Nitrogen Ammoniacal (mg/L)	Nitrogen Oxidised (mg/L)	Nitrogen TKN (mg/L)	Nitrogen Total (mg/L)	Phosphorus Soluble Reactive (mg/L)	Phosphorus Total (mg/L)	Reactive Silica (mg/L)
	Above Guideline	-	11	-	0	-	4	-	-	-	-	-	-	-	1	-	11	4	-	12	0	9	-
	Below Guideline	-	-	-	9	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E531	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	12	0.259	2.3	66	5.96	6.73	1	<1	7.81	31.7	2.3	5	12	1.8	0.11	<0.005	0.004	0.1	0.11	<0.001	0.006	2.66
	Median	15	0.3115	3	82	7.985	6.855	3	2	16.767	44.4	3.05	8.5	18.5	3.32	0.1435	0.012	0.0105	0.14	0.17	0.0025	0.0105	3.395
	Max	19	0.391	4.4	100.1	10.95	7.03	4	5	23.37	60.2	4.5	13	27	7.65	0.225	0.027	0.201	0.26	0.34	0.006	0.017	5.2
	Above Guideline	-	5	-	0	-	0	-	-	-	-	-	-	-	0	-	6	5	-	4	0	0	-
	Below Guideline	-	-	-	10	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E551	n	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	12	12	12	12	12	12
	Min	<1	0.007	1.2	70.3	5.99	6.68	84	<1	7.49	98.5	1	1	2	0.09	0.02	<0.005	<0.002	0.01	0.04	<0.001	<0.005	5.99
	Median	20	0.361	1.4	91.7	9.39	6.95	115	<1	18.068	133	1.4	2	4	0.2	0.022	<0.005	0.035	0.06	0.1	0.001	<0.005	6.535
	Max	28	0.451	1.8	114.8	10.64	8.15	126	1	23.303	165	1.9	3	7	4.91	0.034	0.02	0.165	0.13	0.23	0.004	0.012	9.43
	Above Guideline	-	7	-	1	-	1	-	-	-	-	-	-	-	0	-	1	10	-	0	0	0	-
	Below Guideline	-	-	-	5	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table A2 Warragamba system – catchments – part 2

		Metals										Cyanobacteria									Indicator Bacteria		
Site Code	Statistic	Aluminium Filtered (mg/L)	Aluminium Total (mg/L)	Calcium Filtered (mg/L)	Iron Filtered (mg/L)	Iron Total (mg/L)	Magnesium Filtered (mg/L)	Manganese Filtered (mg/L)	Manganese Total (mg/L)	Potassium Filtered (mg/L)	Sodium Filtered (mg/L)	Chlorophyll-a (ug/L)	Algal Count - Total (cells/mL)	Algal Biovolume - Total (mm3/L)	Algal ASU - Total (ASU/mL)	Algal Count - Cyanobacteria (cells/mL)	Algal Biovolume - Cyanobacteria (mm3/L)	Algal ASU - Cyanobacteria (ASU/mL)	Algal Count - Toxic Cyanobacteria (cells/mL)	Algal Biovolume - Toxic Cyanobacteria (mm3/L)	Clostridium perfringens (cfu/100 mL) or (spores/100mL)	E. coli (orgs/100mL) or (CFU/100mL)	Enterococci (cfu/100ml)
E0114	n	12	12	12	12	12	12	12	12	12	12	12	1	1	1	1	1	1	1	1	12	12	12
	Min	<0.01	<0.01	12.6	<0.01	0.03	6.5	0.003	0.004	4.5	30.1	1.02	5390	1.49	889.7	2310	0.003	9.02	0	0	<1	5	1
	Median	<0.01	0.02	14.4	0.03	0.06	7.45	0.0085	0.0145	5.45	33.3	2.065	5390	1.49	889.7	2310	0.003	9.02	0	0	2	42	45
	Max	0.04	0.22	15.7	0.06	0.34	8.1	0.019	0.038	6.1	36	5.27	5390	1.49	889.7	2310	0.003	9.02	0	0	7	500	500
	Above Guideline	-	2	-	-	-	-	-	0	-	-	1	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E0115	n	12	12	12	12	12	12	12	12	12	12	12	1	1	1	1	1	1	1	1	12	12	12
	Min	<0.01	0.02	19.7	<0.01	0.04	11.4	0.007	0.015	7.3	38.7	0.38	3280	6.89	3151	0	0	0	0	0	<1	3	<1
	Median	<0.01	0.025	25.45	0.03	0.085	14.55	0.013	0.024	8.85	50.35	1.385	3280	6.89	3151	0	0	0	0	0	2	30.5	21
	Max	0.08	0.19	45.9	0.1	0.42	30.2	0.304	0.296	13.1	90.8	15.9	3280	6.89	3151	0	0	0	0	0	85	320	330
	Above Guideline	-	3	-	-	-	-	-	0	-	-	1	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E0321	n	12	12	12	12	12	12	12	12	12	12	12	0	0	0	0	0	0	0	0	12	12	12
	Min	<0.01	0.03	16.3	0.05	0.1	8.9	0.017	0.022	5.2	32.1	0.8	-	-	-	-	-	-	-	-	3	7	3
	Median	0.01	0.105	34.95	0.105	0.435	23.15	0.1875	0.22	9.65	97.8	2.33	-	-	-	-	-	-	-	-	9	150	28.5
	Max	0.02	0.16	68.7	0.28	0.72	45.1	0.43	0.477	19	139	3.76	-	-	-	-	-	-	-	-	26	600	360
	Above Guideline	-	11	-	-	-	-	-	0	-	-	0	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E046	n	12	12	12	12	12	12	12	12	12	12	12	4	4	4	4	4	4	4	4	12	12	12
	Min	0.01	0.03	7.6	0.04	0.16	2.1	0.005	0.008	3.3	16.9	0.75	816	0.596	644.4	0	0	0	0	0	9	37	6
	Median	0.02	0.06	10.15	0.07	0.225	2.85	0.014	0.0165	4.3	20.7	2.45	1540	1.146	748.9	0	0	0	0	0	24	145	71
	Max	0.03	0.23	12.6	0.13	0.44	3.5	0.028	0.04	5.7	33.1	14.1	2450	2.53	1330	817	0.006	11.7	0	0	99	970	1300
	Above Guideline	-	8	-	-	-	-	-	0	-	-	4	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E073	n	11	11	11	11	11	11	11	11	11	11	11	1	1	1	1	1	1	1	1	11	11	11
	Min	<0.01	0.02	12.8	0.03	0.12	6.5	0.007	0.006	4.2	27.5	1.3	10390	1.78	929.3	6740	0.017	39.5	0	0	<1	18	14
	Median	0.01	0.04	15.2	0.08	0.19	7.6	0.012	0.014	5.3	30.6	2.51	10390	1.78	929.3	6740	0.017	39.5	0	0	4	67	59
	Max	0.07	0.5	17.1	0.13	0.73	8.2	0.019	0.042	5.8	34.6	5.89	10390	1.78	929.3	6740	0.017	39.5	0	0	11	1100	2200
	Above Guideline	-	3	-	-	-	-	-	0	-	-	1	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E083	n	12	12	12	12	12	12	12	12	12	12	12	0	0	0	0	0	0	0	0	12	12	12
	Min	<0.01	0.01	8.7	0.01	0.05	3.1	0.002	0.005	1.3	10.2	0.4	-	-	-	-	-	-	-	-	<1	<1	<1
	Median	<0.01	0.02	10.3	0.03	0.075	3.85	0.007	0.009	1.95	14.3	1.325	-	-	-	-	-	-	-	-	1	8	15.5
	Max	0.03	0.2	17.5	0.08	0.39	6.1	0.014	0.056	3.5	17.4	3.04	-	-	-	-	-	-	-	-	9	20	220
	Above Guideline	-	3	-	-	-	-	-	0	-	-	0	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E130	n	12	12	12	12	12	12	12	12	12	12	12	0	0	0	0	0	0	0	0	12	12	12
	Min	<0.01	0.02	5.1	<0.01	0.04	1.9	<0.001	0.002	0.5	5.1	<0.20	-	-	-	-	-	-	-	-	<1	<1	1
	Median	<0.01	0.045	6.05	0.03	0.1	2.35	0.006	0.008	0.8	5.75	1.315	-	-	-	-	-	-	-	-	2	15	22.5
	Max	0.08	0.16	10.9	0.08	0.18	3.9	0.014	0.018	1.4	7.9	2.18	-	-	-	-	-	-	-	-	8	170	130
	Above Guideline	-	5	-	-	-	-	-	0	-	-	0	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E157	n	11	11	11	11	11	11	11	11	11	11	11	0	0	0	0	0	0	0	0	11	11	11
	Min	<0.01	0.01	3	0.08	0.16	1.3	0.007	0.008	1.1	6.4	<0.20	-	-	-	-	-	-	-	-	<1	2	4
	Median	0.01	0.04	4	0.14	0.27	1.6	0.011	0.013	1.3	7.8	0.56	-	-	-	-	-	-	-	-	3	14	31

		Metals										Cyanobacteria									Indicator Bacteria		
Site Code	Statistic	Aluminium Filtered (mg/L)	Aluminium Total (mg/L)	Calcium Filtered (mg/L)	Iron Filtered (mg/L)	Iron Total (mg/L)	Magnesium Filtered (mg/L)	Manganese Filtered (mg/L)	Manganese Total (mg/L)	Potassium Filtered (mg/L)	Sodium Filtered (mg/L)	Chlorophyll-a (ug/L)	Algal Count - Total (cells/mL)	Algal Biovolume - Total (mm3/L)	Algal ASU - Total (ASU/mL)	Algal Count - Cyanobacteria (cells/mL)	Algal Biovolume - Cyanobacteria (mm3/L)	Algal ASU - Cyanobacteria (ASU/mL)	Algal Count - Toxic Cyanobacteria (cells/mL)	Algal Biovolume - Toxic Cyanobacteria (mm3/L)	Clostridium perfringens (cfu/100 mL) or (spores/100mL)	E. coli (orgs/100mL) or (CFU/100mL)	Enterococci (cfu/100ml)
	Max	0.02	0.13	5.2	0.19	0.54	3	0.021	0.027	1.6	10.3	1.28	-	-	-	-	-	-	-	-	76	49	240
	Above Guideline	-	4	-	-	-	-	-	0	-	-	0	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E203	n	12	12	12	12	12	12	12	12	12	12	12	0	0	0	0	0	0	0	0	12	12	12
	Min	0.01	0.05	8.8	0.07	0.24	2.9	0.027	0.03	2.3	11	0.99	-	-	-	-	-	-	-	-	1	27	21
	Median	0.045	0.16	16.25	0.34	0.74	7.75	0.043	0.0515	4.55	26.15	1.935	-	-	-	-	-	-	-	-	16	180	200
	Max	0.17	0.53	19.5	0.53	1.05	9.6	0.091	0.094	10.6	35	3.13	-	-	-	-	-	-	-	-	200	1000	1500
	Above Guideline	-	10	-	-	-	-	-	0	-	-	0	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E206	n	12	12	12	12	12	12	12	12	12	12	12	1	1	1	1	1	1	1	1	12	12	12
	Min	<0.01	0.02	8.7	0.04	0.1	5.9	0.005	0.006	3.4	22.3	0.6	1380	0.932	454.7	0	0	0	0	0	<1	4	10
	Median	0.025	0.04	11.6	0.115	0.2	7.1	0.0065	0.0085	5.2	26.7	1.535	1380	0.932	454.7	0	0	0	0	0	1.5	15	53
	Max	0.18	0.44	15.3	0.43	0.81	9.2	0.015	0.015	7.9	32.2	5.1	1380	0.932	454.7	0	0	0	0	0	20	97	90
	Above Guideline	-	5	-	-	-	-	-	0	-	-	1	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E210	n	12	12	12	12	12	12	12	12	12	12	12	0	0	0	0	0	0	0	0	12	12	12
	Min	<0.01	0.03	9.3	0.02	0.16	7.1	0.01	0.012	3.1	21.5	0.37	-	-	-	-	-	-	-	-	<1	<1	1
	Median	0.01	0.075	13.3	0.075	0.29	10.15	0.021	0.0255	4.3	28.1	1.15	-	-	-	-	-	-	-	-	1	14	10.5
	Max	0.02	0.17	16.4	0.18	0.41	12.4	0.064	0.074	4.9	33.4	1.57	-	-	-	-	-	-	-	-	6	26	85
	Above Guideline	-	8	-	-	-	-	-	0	-	-	0	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E243	n	12	12	12	12	12	12	12	12	12	12	12	0	0	0	0	0	0	0	0	12	12	12
	Min	<0.01	<0.01	0.6	<0.01	0.04	1.8	0.003	0.003	1	14	<0.20	-	-	-	-	-	-	-	-	<1	<1	<1
	Median	<0.01	0.015	0.9	0.03	0.06	2.5	0.0065	0.006	1.6	16.9	0.22	-	-	-	-	-	-	-	-	<1	1	4.5
	Max	0.02	0.06	15	0.05	0.11	10	0.017	0.038	2.1	20.6	1.85	-	-	-	-	-	-	-	-	1	15	88
	Above Guideline	-	1	-	-	-	-	-	0	-	-	0	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E306	n	12	12	12	12	12	12	12	12	12	12	12	4	4	4	4	4	4	4	4	12	12	12
	Min	0.01	0.15	14.4	0.14	0.65	8.2	0.036	0.05	2.3	18.3	0.81	1000	1.65	761.1	0	0	0	0	0	4	52	9
	Median	0.09	0.295	17.7	0.27	0.79	9.65	0.0915	0.12	3.45	26.05	3.805	2445	2.495	978.4	0	0	0	0	0	55	255	96.5
	Max	0.37	0.92	25.5	0.52	1.54	16.7	0.165	0.23	4.1	34.6	7.8	5530	4.95	2580	1070	0.009	13.7	255	0.006	200	4900	9300
	Above Guideline	-	12	-	-	-	-	-	0	-	-	4	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E3151	n	12	12	12	12	12	12	12	12	12	12	12	6	6	6	6	6	6	6	6	12	12	12
	Min	0.02	0.19	25.8	0.03	0.24	9.9	0.03	0.05	9	39.6	0.98	425	0.656	187.7	0	0	0	0	0	25	55	11
	Median	0.03	0.335	32.65	0.055	0.45	12	0.0585	0.105	12.4	49.65	4.64	1625	1.585	390.2	68	0	0.795	0	0	61	215	59
	Max	0.08	0.53	35.8	0.16	0.64	22.4	0.179	0.227	19.8	56.2	14.4	5580	3.18	1665	612	0.001	2.38	0	0	120	540	300
	Above Guideline	-	12	-	-	-	-	-	0	-	-	6	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E332	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	0.1	0.17	5.1	0.11	0.31	3	0.017	0.037	2	12.2	9.28	3550	1.58	656	0	0	0	0	0	1	<1	<1
	Median	0.185	0.385	12.9	0.25	0.685	6	0.04	0.0865	4.7	22.8	23.25	24995	3.465	2020	7720	0.0145	41.2	0	0	15.5	16	8.5
	Max	1.13	1.08	15.8	0.88	1.37	8.4	0.089	0.132	7.4	30.8	73.9	130200	37.8	17840	81360	0.497	265.4	953	0.023	90	170	64
	Above Guideline	-	12	-	-	-	-	-	0	-	-	12	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E409	n	12	12	12	12	12	12	12	12	12	12	12	11	11	11	11	11	11	11	11	12	12	12
	Min	<0.01	0.09	15.8	0.02	0.24	12.5	0.006	0.049	4.2	33.4	4	7680	1.52	813.8	0	0	0	0	0	5	1	1

		Metals										Cyanobacteria									Indicator Bacteria		
Site Code	Statistic	Aluminium Filtered (mg/L)	Aluminium Total (mg/L)	Calcium Filtered (mg/L)	Iron Filtered (mg/L)	Iron Total (mg/L)	Magnesium Filtered (mg/L)	Manganese Filtered (mg/L)	Manganese Total (mg/L)	Potassium Filtered (mg/L)	Sodium Filtered (mg/L)	Chlorophyll-a (ug/L)	Algal Count - Total (cells/mL)	Algal Biovolume - Total (mm3/L)	Algal ASU - Total (ASU/mL)	Algal Count - Cyanobacteria (cells/mL)	Algal Biovolume - Cyanobacteria (mm3/L)	Algal ASU - Cyanobacteria (ASU/mL)	Algal Count - Toxic Cyanobacteria (cells/mL)	Algal Biovolume - Toxic Cyanobacteria (mm3/L)	Clostridium perfringens (cfu/100 mL) or (spores/100mL)	E. coli (orgs/100mL) or (CFU/100mL)	Enterococci (cfu/100ml)
	Median	0.02	0.32	29.6	0.06	0.55	23.25	0.041	0.106	6.9	74.5	15.925	20670	2.95	2045	5780	0.008	24.3	0	0	16	25	10.5
	Max	0.24	0.55	36.2	0.6	1.22	28.4	0.112	0.16	16.4	107	41	147600	14.24	7072	34530	0.064	150.5	680	0.018	57	110	90
	Above Guideline	-	12	-	-	-	-	-	0	-	-	11	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E4122	n	12	12	12	12	12	12	12	12	12	12	12	4	4	4	4	4	4	4	4	12	12	12
	Min	<0.01	0.05	14.5	0.05	0.22	14.8	0.01	0.014	1.9	31.2	1.6	6480	0.767	435.7	1140	0.004	11.1	0	0	3	4	2
	Median	0.03	0.165	22.45	0.16	0.47	21.4	0.024	0.05	3.3	37.35	3.84	17785	1.28	1026.5	4395	0.006	18.3	0	0	8.5	39.5	36
	Max	0.42	0.57	31.6	0.62	1.14	27.9	0.06	0.199	4.5	45	10.12	42580	3.33	1440	31450	0.049	135.8	0	0	27	3200	1700
	Above Guideline	-	11	-	-	-	-	-	0	-	-	4	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E433	n	12	12	12	12	12	12	12	12	12	12	12	5	5	5	5	5	5	5	5	12	12	12
	Min	0.03	0.03	3.6	0.3	0.5	3.8	0.016	0.019	1.3	18.8	1	2690	0.343	191	0	0	0	0	0	1	6	7
	Median	0.05	0.1	5	0.61	1	5.2	0.0275	0.0375	1.55	21.7	4.54	3960	0.723	415	1910	0	4.36	0	0	6.5	14	30.5
	Max	0.14	0.28	8.7	0.88	1.67	8.3	0.117	0.09	2.1	29.9	8.08	5980	1.88	925.1	3120	0.004	13.3	0	0	19	220	120
	Above Guideline	-	10	-	-	-	-	-	0	-	-	5	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E450	n	12	12	12	12	12	12	12	12	12	12	12	11	11	11	11	11	11	11	11	12	12	12
	Min	0.02	0.06	8	0.09	0.22	7	0.008	0.028	2.4	26.4	2.9	2590	0.722	473.6	0	0	0	0	0	1	7	4
	Median	0.075	0.21	15.85	0.42	0.845	14	0.028	0.0615	3.65	42.65	9.2	8880	1.85	886	1630	0.001	4.89	0	0	14	32.5	35.5
	Max	0.4	0.58	25.1	0.74	1.35	19.9	0.043	0.155	4.3	62	16.8	151600	1030	41130	139000	0.144	443.3	340	0.009	31	540	850
	Above Guideline	-	12	-	-	-	-	-	0	-	-	11	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E457	n	12	12	12	12	12	12	12	12	12	12	12	11	11	11	11	11	11	11	11	12	12	12
	Min	<0.01	0.02	36.6	<0.01	0.08	28.8	0.002	0.032	5.2	91.4	4.1	1190	1.44	446.6	0	0	0	0	0	2	4	2
	Median	0.015	0.045	48.1	0.03	0.14	36.5	0.0535	0.0795	6.1	125	17.075	15600	9.66	2611	953	0.005	9.72	0	0	10.5	18.5	9
	Max	0.18	0.49	53.7	0.33	0.76	40.5	0.132	0.14	6.5	139	57.06	50730	55.96	9437	37100	1.75	1006	22850	0.628	52	480	530
	Above Guideline	-	5	-	-	-	-	-	0	-	-	11	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E488	n	12	12	12	12	12	12	12	12	12	12	12	2	2	2	2	2	2	2	2	12	12	12
	Min	<0.01	0.03	15.1	0.02	0.06	8.8	<0.001	0.014	2.6	21.5	1.29	4780	2.2	1126	748	0	2.93	0	0	<1	2	1
	Median	0.045	0.25	21.85	0.065	0.3	13.2	0.0065	0.024	3.1	31.55	3.105	13725	2.37	1446.5	782	0.0045	9.815	0	0	2.5	5.5	12
	Max	0.25	0.6	30.2	0.41	0.88	18.4	0.013	0.04	3.8	38.6	24	22670	2.54	1767	816	0.009	16.7	0	0	16	45	94
	Above Guideline	-	10	-	-	-	-	-	0	-	-	2	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E490	n	12	12	12	12	12	12	12	12	12	12	12	8	8	8	8	8	8	8	8	12	12	12
	Min	<0.01	0.02	14	0.06	0.2	15.6	0.014	0.029	2.8	33	1.59	1580	0.423	302.3	0	0	0	0	0	1	<1	1
	Median	0.01	0.135	23.35	0.16	0.62	19.5	0.032	0.0595	4.9	40.5	5.55	11730	2.005	1065	3640	0.0045	14.365	0	0	6.5	38.5	17.5
	Max	0.21	0.53	27.7	0.77	1.47	24	0.138	0.179	7	47.9	37.8	42530	3.92	2305	32040	0.166	150.5	6120	0.166	27	300	2200
	Above Guideline	-	9	-	-	-	-	-	0	-	-	8	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E531	n	12	12	12	12	12	12	12	12	12	12	12	2	2	2	2	2	2	2	2	12	12	12
	Min	<0.01	0.02	3.3	0.27	0.48	5.7	0.043	0.045	2.9	31.8	1.08	2350	0.787	313.1	0	0	0	0	0	1	7	22
	Median	0.01	0.065	4.75	0.435	0.875	7.9	0.062	0.07	3.6	39.4	2.91	2475	1.5935	579.15	272	0	1.06	0	0	2	130	170
	Max	0.08	0.17	6.3	0.6	1.34	10.8	0.177	0.217	4.5	48.1	5.85	2600	2.4	845.2	544	0	2.12	0	0	7	230	460
	Above Guideline	-	7	-	-	-	-	-	0	-	-	2	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E551	n	12	12	12	12	12	12	12	12	12	12	12	0	0	0	0	0	0	0	0	12	12	12

		Metals										Cyanobacteria									Indicator Bacteria		
Site Code	Statistic	Aluminium Filtered (mg/L)	Aluminium Total (mg/L)	Calcium Filtered (mg/L)	Iron Filtered (mg/L)	Iron Total (mg/L)	Magnesium Filtered (mg/L)	Manganese Filtered (mg/L)	Manganese Total (mg/L)	Potassium Filtered (mg/L)	Sodium Filtered (mg/L)	Chlorophyll-a (ug/L)	Algal Count - Total (cells/mL)	Algal Biovolume - Total (mm3/L)	Algal ASU - Total (ASU/mL)	Algal Count - Cyanobacteria (cells/mL)	Algal Biovolume - Cyanobacteria (mm3/L)	Algal ASU - Cyanobacteria (ASU/mL)	Algal Count - Toxic Cyanobacteria (cells/mL)	Algal Biovolume - Toxic Cyanobacteria (mm3/L)	Clostridium perfringens (cfu/100 mL) or (spores/100mL)	E. coli (orgs/100mL) or (CFU/100mL)	Enterococci (cfu/100ml)
	Min	<0.01	<0.01	16.7	<0.01	0.01	13.8	0.006	0.006	2.2	15.6	<0.20	-	-	-	-	-	-	-	-	<1	<1	<1
	Median	<0.01	<0.01	23.15	0.01	0.03	18.15	0.007	0.0075	3	19.5	0.345	-	-	-	-	-	-	-	-	<1	3	6.5
	Max	<0.01	<0.01	29.2	0.03	0.09	22.5	0.018	0.022	4.1	22.9	1.75	-	-	-	-	-	-	-	-	2	53	60
	Above Guideline	-	0	-	-	-	-	-	0	-	-	0	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table A3 Warragamba system – catchments – part 3

Site Code	Statistic	Crypto oocysts IFA (Adj for Recovery for 10L)	Giardia cysts IFA (Adj for Recovery to 10L)
E083	n	12	12
	Min	<1	<1
	Median	<1	<2
	Max	<4	2
	Above Guideline	-	-
	Below Guideline	-	-
E130	n	12	12
	Min	<1	<1
	Median	<2	<2
	Max	4	2
	Above Guideline	-	-
	Below Guideline	-	-
E157	n	11	11
	Min	<1	<1
	Median	<1	1
	Max	1	2
	Above Guideline	-	-
	Below Guideline	-	-
E210	n	12	12
	Min	<1	<1
	Median	<1	<1
	Max	1	2
	Above Guideline	-	-
	Below Guideline	-	-
E243	n	12	12
	Min	<1	<1
	Median	<1	<1
	Max	<2	<1
	Above Guideline	-	-
	Below Guideline	-	-
E488	n	12	12
	Min	<1	<1
	Median	<1	1
	Max	1	1
	Above Guideline	-	-
	Below Guideline	-	-
E531	n	53	53
	Min	<1	<1
	Median	<1	<1
	Max	1	6
	Above Guideline	-	-
	Below Guideline	-	-

Table A4 Warragamba system – storages – part 1

		Physicochemical															Nutrients						
Station Code	Statistic	Total Alkalinity as CaCO3 (mg/L)	Conductivity @25 C - Field (mS/cm)	Dissolved Organic Carbon (mg/L)	Dissolved Oxygen - Field (%Sat)	Dissolved Oxygen - Field (mg/L)	pH - Field	Sulphate (mg/L)	Suspended Solids (mg/L)	Temperature - Field (Deg C)	Total Hardness as CaCO3 (mg/L)	Total Organic Carbon (mg/L)	True Colour at 400nm (PES filter)	True Colour at 420nm (PES filter)	Turbidity - Field (NTU)	UV Absorbance @ 254nm	Nitrogen Ammoniacal (mg/L)	Nitrogen Oxidised (mg/L)	Nitrogen TKN (mg/L)	Nitrogen Total (mg/L)	Phosphorus Soluble Reactive (mg/L)	Phosphorus Total (mg/L)	Reactive Silica (mg/L)
DWA12	n	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
	Min	36	0.155	4.6	63.5	6.63	6.82	6	<1	12.58	29.9	4.7	8	18	0.21	0.125	<0.005	0.03	0.24	0.28	<0.001	<0.005	1.45
	Median	42	0.1745	5.7	95.75	8.165	7.79	8.5	1	21.335	44.6	5.8	13	28.5	0.7	0.166	0.0085	0.1135	0.315	0.43	0.002	0.007	3.2
	Max	51	0.182	7.7	109.4	9.81	8.35	11	4	27.12	49.4	8.2	26	58	12.11	0.334	0.023	0.258	0.39	0.64	0.006	0.02	4.81
	Above Guideline	-	-	-	0	-	9	-	-	-	-	-	-	-	0	-	10	26	-	20	1	12	-
	Below Guideline	-	-	-	10	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DWA15	n	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
	Min	34	0.147	4.2	82.1	7.87	6.96	7	<1	14.49	33.8	4.2	8	16	0.23	0.108	<0.005	0.003	0.22	0.23	<0.001	<0.005	1.48
	Median	42.5	0.1655	4.95	99.05	8.665	7.68	8	<1	22.075	43.85	5	13	28.5	0.825	0.1635	0.005	0.077	0.275	0.395	0.0015	0.0105	3.17
	Max	44	0.173	6	113.2	9.8	8.43	12	2	27.68	45.7	6	22	50	7.2	0.268	0.011	0.221	0.39	0.58	0.003	0.02	4.5
	Above Guideline	-	-	-	1	-	2	-	-	-	-	-	-	-	0	-	1	5	-	4	0	3	-
	Below Guideline	-	-	-	2	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DWA19	n	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
	Min	34	0.143	3.1	74.8	6.67	6.91	7	2	14.16	33.1	3.2	7	15	0.58	0.099	<0.005	<0.002	0.24	0.25	<0.001	<0.005	1.46
	Median	42	0.152	3.95	90.1	8.155	7.55	8.5	2	21.935	41.45	4.1	10	21.5	1.14	0.123	<0.005	0.013	0.25	0.28	0.002	0.009	2.92
	Max	46	0.162	4.6	111.1	9.17	8.18	9	2	28.04	45.2	4.7	14	31	4.22	0.164	0.011	0.196	0.28	0.44	0.002	0.019	5.05
	Above Guideline	-	-	-	1	-	2	-	-	-	-	-	-	-	0	-	1	3	-	1	0	2	-
	Below Guideline	-	-	-	3	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DWA2 / DWA1	n	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
	Min	37	0.169	5.1	67.8	7.08	6.61	6	<1	12.78	37.8	5.1	9	20	0.08	0.131	<0.005	0.035	0.24	0.33	<0.001	<0.005	1.05
	Median	42	0.18	6.05	99.25	8.345	7.75	8.5	1	20.255	46.15	6.15	14.5	31	0.735	0.176	0.007	0.149	0.32	0.475	0.002	0.008	3.12
	Max	48	0.186	6.9	108.8	9.98	8.2	10	4	26.51	50.4	6.9	24	52	8.91	0.294	0.032	0.267	0.41	0.6	0.005	0.024	4.48
	Above Guideline	-	-	-	0	-	8	-	-	-	-	-	-	-	0	-	8	26	-	25	0	10	-
	Below Guideline	-	-	-	8	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DWA21	n	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
	Min	35	0.143	3	74.5	6.67	6.91	7	1	14.41	33.4	3	7	15	0.51	0.099	<0.005	<0.002	0.21	0.21	<0.001	<0.005	1.36
	Median	43	0.1535	3.85	90.35	7.995	7.6	8.5	2	22.39	41.9	3.85	9.5	21	0.98	0.117	<0.005	0.012	0.23	0.275	0.002	0.008	2.955
	Max	48	0.164	4.7	111.6	9.28	8.28	10	2	27.75	47.1	4.9	14	31	4.26	0.165	0.012	0.19	0.31	0.43	0.003	0.022	5.44
	Above Guideline	-	-	-	1	-	1	-	-	-	-	-	-	-	0	-	1	3	-	1	0	2	-
	Below Guideline	-	-	-	3	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DWA27	n	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
	Min	39	0.176	5.2	59.2	6.15	6.63	7	<1	13.05	35.3	5.2	9	20	0.17	0.14	<0.005	0.02	0.26	0.3	<0.001	<0.005	0.74
	Median	44.5	0.1895	6	99.4	8.435	7.96	9	1	21.295	50.35	6	13	29	0.685	0.1735	0.008	0.1185	0.35	0.47	<0.001	0.009	2.765
	Max	54	0.21	7.4	109.7	9.69	8.46	11	3	26.58	55.1	7.6	26	56	10.94	0.331	0.011	0.261	0.46	0.67	0.006	0.028	4.46
	Above Guideline	-	-	-	0	-	11	-	-	-	-	-	-	-	0	-	3	26	-	22	1	11	-
	Below Guideline	-	-	-	10	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DWA311	n	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
	Min	42	0.191	5.3	69.2	7.23	6.9	8	<1	13.51	53.1	5.4	10	21	0.49	0.144	<0.005	0.023	0.29	0.31	<0.001	<0.005	0.55
	Median	47	0.2025	5.95	93.85	8.2	7.815	9	2	21.33	55.7	5.85	15.5	33	1.045	0.188	0.007	0.125	0.355	0.485	<0.001	0.0095	2.315
	Max	52	0.218	7.2	105.7	9.3	8.19	10	2	25.66	58	6.8	23	52	10.32	0.302	0.02	0.246	0.43	0.68	0.005	0.02	4.18
	Above Guideline	-	-	-	0	-	2	-	-	-	-	-	-	-	0	-	2	6	-	4	0	3	-
	Below Guideline	-	-	-	2	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DWA39	n	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6

		Physicochemical															Nutrients						
Station Code	Statistic	Total Alkalinity as CaCO3 (mg/L)	Conductivity @25 C - Field (mS/cm)	Dissolved Organic Carbon (mg/L)	Dissolved Oxygen - Field (%Sat)	Dissolved Oxygen - Field (mg/L)	pH - Field	Sulphate (mg/L)	Suspended Solids (mg/L)	Temperature - Field (Deg C)	Total Hardness as CaCO3 (mg/L)	Total Organic Carbon (mg/L)	True Colour at 400nm (PES filter)	True Colour at 420nm (PES filter)	Turbidity - Field (NTU)	UV Absorbance @ 254nm	Nitrogen Ammoniacal (mg/L)	Nitrogen Oxidised (mg/L)	Nitrogen TKN (mg/L)	Nitrogen Total (mg/L)	Phosphorus Soluble Reactive (mg/L)	Phosphorus Total (mg/L)	Reactive Silica (mg/L)
	Min	45	0.194	5.4	76.6	7.16	7.04	8	<1	13.88	57	5.6	10	22	1.12	0.153	0.005	0.005	0.34	0.34	<0.001	0.007	0.37
	Median	51.5	0.2165	6	89.75	8.11	7.73	10	2.5	21.145	60	6	14.5	31.5	2.105	0.1905	0.011	0.0955	0.36	0.465	<0.001	0.009	1.305
	Max	56	0.24	7.3	102.3	9.18	8.07	10	3	26.07	63.6	7	22	49	9.81	0.303	0.033	0.25	0.51	0.76	0.004	0.032	4.15
	Above Guideline	-	-	-	0	-	2	-	-	-	-	-	-	-	0	-	3	5	-	5	0	2	-
	Below Guideline	-	-	-	3	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DWA9	n	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
	Min	37	0.167	5	59.2	6.18	6.6	6	<1	12.58	36.8	5	9	20	0.05	0.131	<0.005	0.04	0.16	0.33	<0.001	<0.005	1.22
	Median	41	0.18	5.9	95.95	8.275	7.725	8	<1	19.955	46.7	5.9	14.5	31	0.725	0.175	0.007	0.143	0.325	0.445	0.002	0.007	3.245
	Max	46	0.189	7.1	109.2	9.74	8.24	10	3	26.53	51.3	6.9	24	52	11.18	0.307	0.016	0.266	0.37	0.6	0.004	0.022	4.64
	Above Guideline	-	-	-	0	-	3	-	-	-	-	-	-	-	0	-	6	26	-	24	0	9	-
	Below Guideline	-	-	-	10	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RPR1	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	19	0.131	4	90.2	7.54	6.88	4	<1	12.3	19.2	4.2	6	12	1.53	0.102	<0.005	<0.002	0.19	0.19	<0.001	<0.005	0.27
	Median	27.5	0.147	4.6	100.85	8.995	7.605	6.5	2	20.62	32	4.7	6	14	2.24	0.1125	0.0175	0.066	0.26	0.315	0.001	0.007	0.765
	Max	32	0.159	4.8	109	10.66	8.06	7	4	26.79	35.7	4.9	8	18	4.14	0.13	0.044	0.107	0.32	0.4	0.004	0.019	1.48
	Above Guideline	-	-	-	0	-	1	-	-	-	-	-	-	-	0	-	7	11	-	1	0	3	-
	Below Guideline	-	-	-	0	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RPR6	n	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
	Min	20	0.135	4.1	91.8	7.86	7.16	4	<1	13.43	17.6	4.1	6	13	1.99	0.103	<0.005	0.006	0.18	0.29	<0.001	<0.005	0.37
	Median	24	0.145	4.55	97.15	8.96	7.41	6	2	20.675	31.5	4.6	6.5	14	2.39	0.115	0.0235	0.0605	0.26	0.32	<0.001	0.0055	1.085
	Max	31	0.159	4.9	109.7	9.93	8.04	7	3	26.99	35.6	5.2	10	22	4.04	0.138	0.039	0.112	0.31	0.33	0.002	0.009	1.59
	Above Guideline	-	-	-	0	-	1	-	-	-	-	-	-	-	0	-	4	5	-	0	0	0	-
	Below Guideline	-	-	-	0	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table A5 Warragamba system – storages – part 2

		Metals										Cyanobacteria											Indicator bacteria		
Station Code	Statistic	Aluminium Filtered (mg/L)	Aluminium Total (mg/L)	Calcium Filtered (mg/L)	Iron Filtered (mg/L)	Iron Total (mg/L)	Magnesium Filtered (mg/L)	Manganese Filtered (mg/L)	Manganese Total (mg/L)	Potassium Filtered (mg/L)	Sodium Filtered (mg/L)	Chlorophyll-a (ug/L)	Algal Count - Total (cells/mL)	Algal Biovolume - Total (mm3/L)	Algal ASU - Total (ASU/mL)	Algal Count - Cyanobacteria (cells/mL)	Algal Biovolume - Cyanobacteria (mm3/L)	Algal ASU - Cyanobacteria (ASU/mL)	Algal Count - Toxic Cyanobacteria (cells/mL)	Algal Biovolume - Toxic Cyanobacteria (mm3/L)	Microcystin LR+RR+YR (ug/L)	2-Methylisoborneol (MIB) (ng/L)	Geosmin (ng/L)	Clostridium perfringens (cfu/100 mL) or (spores/100mL)	E. coli (orgs/100mL) or (CFU/100mL)	Enterococci (cfu/100ml)
DWA12	n	26	26	26	26	26	26	26	26	26	26	26	17	17	17	17	17	17	17	17	0	0	0	26	26	26
	Min	<0.01	<0.01	5.7	<0.01	0.02	3.8	<0.001	<0.001	1.9	12.1	1.9	782	0.294	124.7	0	0	0	0	0	-	-	-	<1	<1	<1
	Median	0.02	0.04	9.2	0.045	0.105	5.25	<0.001	0.003	2.6	15.4	3.135	5990	1.5	527.7	3610	0.014	23.8	204	0.006	-	-	-	<1	<1	<1
	Max	0.26	0.56	10.5	0.32	0.67	5.8	0.032	0.049	3	16.7	5.7	83330	4.95	1444	80710	0.502	381.1	4730	0.502	-	-	-	28	1	2
	Above Guideline	-	12	-	-	-	-	-	0	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DWA15	n	6	6	6	6	6	6	6	6	6	6	6	3	3	3	3	3	3	3	3	0	0	0	6	6	6
	Min	<0.01	<0.01	7.1	0.01	0.02	3.9	<0.001	0.002	2.2	12.7	2.64	1900	4.72	1130	0	0	0	0	0	-	-	-	<1	<1	<1
	Median	0.025	0.035	9.45	0.045	0.09	4.8	<0.001	0.004	2.4	14.3	4.7	7500	5.56	1252	2740	0.092	61	1040	0.027	-	-	-	<1	<1	<1
	Max	0.14	0.27	9.8	0.16	0.34	5.4	0.01	0.016	2.6	14.9	6.16	62320	6.95	1394	59940	0.131	188	1090	0.092	-	-	-	2	2	1
	Above Guideline	-	3	-	-	-	-	-	0	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DWA19	n	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	0	0	0	6	6	6
	Min	<0.01	<0.01	7	0.02	0.05	3.8	<0.001	0.005	1.8	11.8	3.91	1750	0.927	489.3	0	0	0	0	0	-	-	-	<1	<1	<1
	Median	0.015	0.025	9.3	0.045	0.13	4.4	<0.001	0.008	2.1	12.85	6.14	9750	1.495	646.85	5860	0.004	17.35	0	0	-	-	-	<1	<1	<1
	Max	0.08	0.15	10.2	0.11	0.17	4.8	0.006	0.013	2.4	13.5	8.15	60900	7.62	2032	56310	0.038	128.2	619	0.017	-	-	-	3	1	11
	Above Guideline	-	1	-	-	-	-	-	0	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DWA2 / DWA1	n	26	26	26	26	26	26	26	26	26	26	44	44	44	44	44	44	44	44	44	0	44	44	26	26	26
	Min	<0.01	<0.01	7.7	<0.01	<0.01	4.5	<0.001	<0.001	2.4	14.4	1.64	85	0.04	22.5	0	0	0	0	0	-	<1	<1	<1	<1	<1
	Median	0.02	0.04	9.3	0.035	0.075	5.5	<0.001	0.002	2.8	15.85	4.29	9455	2.295	745.25	6600	0.0085	22.6	0	0	-	<1	3	<1	<1	<1
	Max	0.19	0.41	10.6	0.25	0.48	6	0.035	0.055	3	17.4	12.1	313200	20.49	4067	307800	0.153	690	782	0.096	-	5	430	3	6	33
	Above Guideline	-	12	-	-	-	-	-	0	-	-	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DWA21	n	6	6	6	6	6	6	6	6	6	6	6	5	5	5	5	5	5	5	5	0	0	0	6	6	6
	Min	<0.01	<0.01	7.1	0.01	0.06	3.8	<0.001	0.004	1.8	11.8	4.34	6250	1.29	574.2	1630	0	2.11	0	0	-	-	-	<1	<1	<1
	Median	<0.01	0.02	9.55	0.035	0.095	4.45	<0.001	0.008	2.1	13.3	5.42	9090	5.97	2076	6170	0.021	24.5	0	0	-	-	-	<1	<1	1
	Max	0.09	0.16	10.8	0.12	0.18	4.9	0.007	0.016	2.4	14.3	6.7	146500	7.92	2984	139500	0.056	289.8	170	0.02	-	-	-	2	1	2
	Above Guideline	-	1	-	-	-	-	-	0	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DWA27	n	26	26	26	26	26	26	26	26	26	26	26	17	17	17	17	17	17	17	17	0	0	0	26	26	26
	Min	<0.01	<0.01	6.7	<0.01	0.02	4.5	<0.001	0.002	2.4	15.7	1.52	714	0.25	113.2	0	0	0	0	0	-	-	-	<1	<1	<1
	Median	0.015	0.04	10.25	0.03	0.08	6.1	<0.001	0.0035	2.9	16.9	3.345	3080	1.64	512.8	1680	0.025	76.2	136	0.016	-	-	-	<1	<1	<1
	Max	0.24	0.54	11.5	0.31	0.68	6.7	0.021	0.044	3.3	20	8.4	81030	3.61	1179	77680	0.23	233.8	1950	0.23	-	-	-	3	2	17
	Above Guideline	-	11	-	-	-	-	-	0	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DWA311	n	6	6	6	6	6	6	6	6	6	6	6	3	3	3	3	3	3	3	3	0	0	0	6	6	6
	Min	<0.01	0.01	10.7	<0.01	0.02	6.4	<0.001	0.002	2.8	17.5	1.7	3400	0.732	236.7	544	0.001	5.14	0	0	-	-	-	<1	<1	<1
	Median	0.025	0.05	11.2	0.05	0.095	6.7	<0.001	0.005	2.95	18.15	3.645	3740	1.08	313.9	2450	0.001	7.08	0	0	-	-	-	<1	<1	<1
	Max	0.2	0.18	11.7	0.25	0.29	7.3	0.007	0.01	3.3	19.5	6	20720	1.25	619.4	19900	0.053	65.5	0	0	-	-	-	5	1	8
	Above Guideline	-	3	-	-	-	-	-	0	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DWA39	n	6	6	6	6	6	6	6	6	6	6	6	3	3	3	3	3	3	3	3	0	0	0	6	6	6
	Min	<0.01	0.03	11.3	<0.01	0.04	7	<0.001	0.006	2.8	18.4	2.8	4150	1.11	577.3	0	0	0	0	0	-	-	-	<1	<1	<1
	Median	0.02	0.065	12.15	0.06	0.14	7.35	0.0025	0.0155	3.1	19.45	4.4	6620	1.82	608.5	646	0.013	15.8	510	0.013	-	-	-	<1	<1	<1

		Metals										Cyanobacteria												Indicator bacteria		
Station Code	Statistic	Aluminium Filtered (mg/L)	Aluminium Total (mg/L)	Calcium Filtered (mg/L)	Iron Filtered (mg/L)	Iron Total (mg/L)	Magnesium Filtered (mg/L)	Manganese Filtered (mg/L)	Manganese Total (mg/L)	Potassium Filtered (mg/L)	Sodium Filtered (mg/L)	Chlorophyll-a (ug/L)	Algal Count - Total (cells/mL)	Algal Biovolume - Total (mm3/L)	Algal ASU - Total (ASU/mL)	Algal Count - Cyanobacteria (cells/mL)	Algal Biovolume - Cyanobacteria (mm3/L)	Algal ASU - Cyanobacteria (ASU/mL)	Algal Count - Toxic Cyanobacteria (cells/mL)	Algal Biovolume - Toxic Cyanobacteria (mm3/L)	Microcystin LR+RR+YR (ug/L)	2-Methylisoborneol (MIB) (ng/L)	Geosmin (ng/L)	Clostridium perfringens (cfu/100 mL) or (spores/100mL)	E. coli (orgs/100mL) or (CFU/100mL)	Enterococci (cfu/100ml)
	Max	0.2	0.24	13.1	0.26	0.39	7.7	0.006	0.023	3.3	20.9	7	101400	2.16	715.4	99230	0.103	198.4	748	0.064	-	-	-	5	1	1
	Above Guideline	-	4	-	-	-	-	-	0	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DWA9	n	26	26	26	26	26	26	26	26	26	26	26	18	18	18	18	18	18	18	18	0	1	1	26	26	26
	Min	<0.01	<0.01	7.6	<0.01	<0.01	4.2	<0.001	<0.001	2.4	13.7	1.48	510	0.584	145.1	0	0	0	0	0	-	<1	<1	<1	<1	<1
	Median	0.01	0.03	9.55	0.035	0.065	5.4	<0.001	0.0025	2.7	15.8	3.505	5140	1.805	475.45	3060	0.032	37.1	0	0	-	<1	<1	<1	<1	<1
	Max	0.19	0.49	10.8	0.24	0.59	5.9	0.052	0.076	3	17.4	6.7	171800	7.75	1990	168000	0.386	426.3	3130	0.386	-	<1	<1	4	1	2
	Above Guideline	-	11	-	-	-	-	-	0	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RPR1	n	12	12	12	12	12	12	12	12	12	12	39	39	39	39	39	39	39	39	39	4	36	36	12	12	12
	Min	0.02	0.04	3.4	0.02	0.08	2.6	<0.001	0.005	1.5	12.9	2.41	2330	0.284	201.6	544	0	1.19	0	0	<0.15	<1	<1	<1	<1	<1
	Median	0.035	0.08	6	0.05	0.13	4	<0.001	0.0125	1.9	14.75	6.27	62050	1.44	893.9	58870	0.039	136.7	327	0.009	<0.15	1	<1	<1	<1	<1
	Max	0.08	0.16	7.2	0.13	0.22	4.4	0.002	0.027	2.7	16.3	12.97	459700	6.05	2191	456100	0.218	1031	3530	0.09	<0.15	3	2	2	1	4
	Above Guideline	-	11	-	-	-	-	-	0	-	-	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RPR6	n	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	2	6	6	6	6	6
	Min	0.03	0.06	3.1	0.04	0.09	2.4	<0.001	0.008	1.6	13	2.2	2120	0.556	216.9	612	0.01	11.4	204	0.005	<0.15	<1	<1	<1	<1	<1
	Median	0.04	0.1	6.1	0.06	0.15	3.95	0.0015	0.013	1.9	14.85	4.57	35700	1.875	909.4	30590	0.029	78.6	724.5	0.0195	<0.15	<1	<1	1	1.5	<1
	Max	0.08	0.18	7	0.13	0.22	4.4	0.004	0.026	2.2	15.9	8.59	99520	5.62	1380	92190	0.109	280.4	2700	0.068	<0.15	2	1	3	4	1
	Above Guideline	-	6	-	-	-	-	-	0	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table A6 Warragamba system – storages – part 3

		Health related physical chemical									
Site Code	Statistic	Arsenic Total (mg/L)	Barium Total (mg/L)	Beryllium Total (mg/L)	Boron Total (mg/L)	Iodide (mg/L)	Mercury Total (mg/L)	Molybdenum Total (mg/L)	Selenium Total (mg/L)	Silver Total (mg/L)	Tin Total (mg/L)
DWA2 / DWA1	n	2	2	2	2	2	2	2	2	2	2
	Min	<0.001	0.019	<0.001	0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001
	Median	<0.001	0.019	<0.001	0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001
	Max	<0.001	0.019	<0.001	0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001
	Above Guideline	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-

Table A7 Warragamba system – storages – part 4

Site Code	Statistic	Crypto oocysts IFA (Adj for Recovery for 10L)	Giardia cysts IFA (Adj for Recovery to 10L)
COMP2	n	53	53
	Min	<0.3	<0.3
	Median	<0.5	<0.5
	Max	3	0.9
	Above Guideline	-	-
	Below Guideline	-	-
RPR1	n	12	12
	Min	<1	<1
	Median	<1	<2
	Max	1	<6
	Above Guideline	-	-
	Below Guideline	-	-

Table A8 Warragamba system – water filtration plants – part 1

		Physicochemical													Metals						Indicator bacteria			
Station Code	Statistic	Total Alkalinity as CaCO3 (mg/L)	Conductivity @25 C - Field (mS/cm)	Dissolved Organic Carbon (mg/L)	Dissolved Oxygen - Field (%Sat)	Dissolved Oxygen - Field (mg/L)	pH - Field	Temperature - Field (Deg C)	Total Hardness as CaCO3 (mg/L)	Total Organic Carbon (mg/L)	True Colour at 400nm (PES filter)	True Colour at 420nm (PES filter)	Turbidity - Field (NTU)	UV Absorbance @ 254nm	Aluminium Filtered (mg/L)	Aluminium Total (mg/L)	Iron Filtered (mg/L)	Iron Total (mg/L)	Manganese Filtered (mg/L)	Manganese Total (mg/L)	Clostridium perfringens (cfu/100 mL) or (spores/100mL)	Coliforms Total (cfu/100mL)	E. coli (orgs/100mL) or (CFU/100mL)	Enterococci (cfu/100ml)
HBR1	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	36	0.174	5.7	20.7	2.15	6.61	12.35	41	5.6	13	28	3.22	0.178	0.08	0.14	0.11	0.24	0.002	0.012	<1	<1	<1	<1
	Median	40	0.181	5.9	53.5	5.19	6.77	13.954	46.5	5.95	15	33	6.8	0.226	0.11	0.28	0.17	0.375	0.004	0.0235	<1	1.5	<1	<1
	Max	48	0.187	6.7	79.8	8.27	7.06	17.559	51.2	6.4	20	43	10.78	0.263	0.27	0.46	0.26	0.51	0.08	0.113	3	1100	<1	2
	Above Guideline	0	-	-	-	-	-	-	0	-	0	-	0	-	-	0	-	0	-	0	-	-	-	-
	Below Guideline	0	-	-	-	-	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HWA2	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	38	0.094	5.8	20.9	2.2	6.69	13.04	40.9	5.7	14	30	2.71	0.2	0.07	0.14	0.12	0.21	0.002	0.013	<1	<1	<1	<1
	Median	42	0.1805	6.1	65.55	6.38	6.985	14.327	47.2	6	19	41.5	6.075	0.239	0.125	0.265	0.175	0.395	0.003	0.0175	<1	430	<1	1
	Max	45	0.186	6.5	87	8.87	7.26	19.82	51.8	6.3	23	51	10.83	0.296	0.17	0.52	0.25	0.67	0.062	0.085	5	2100	1	3
	Above Guideline	0	-	-	-	-	-	-	0	-	0	-	0	-	-	0	-	0	-	0	-	-	-	-
	Below Guideline	0	-	-	-	-	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PWFP10	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	31	0.153	5.1	104	9.23	6.86	13.96	25.1	4.9	10	22	2.52	0.157	0.07	0.11	0.1	0.16	0.002	0.01	<1	<1	<1	<1
	Median	34.5	0.177	5.85	105.45	10.12	7.085	17.445	43.95	5.8	13	28	5.865	0.203	0.13	0.275	0.185	0.34	0.004	0.02	<1	130	<1	<1
	Max	42	0.187	6.4	113.4	10.72	7.38	24.87	47.9	6.4	14	32	8.39	0.226	0.37	0.36	0.25	0.49	0.106	0.117	1	5400	2	3
	Above Guideline	0	-	-	-	-	-	-	0	-	0	-	0	-	-	0	-	0	-	0	-	-	-	-
	Below Guideline	0	-	-	-	-	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table A9 Warragamba system – water filtration plants – part 2

		Cyanobacteria									Health related physical chemical										
Station Code	Statistic	Algal Count - Total (cells/mL)	Algal Biovolume - Total (mm3/L)	Algal ASU - Total (ASU/mL)	Algal Count - Cyanobacteria (cells/mL)	Algal Biovolume - Cyanobacteria (mm3/L)	Algal ASU - Cyanobacteria (ASU/mL)	Algal Count - Toxic Cyanobacteria (cells/mL)	Algal Biovolume - Toxic Cyanobacteria (mm3/L)	Microcystin LR+RR+YR (ug/L)	Arsenic Total (mg/L)	Barium Total (mg/L)	Beryllium Total (mg/L)	Boron Total (mg/L)	Iodide (mg/L)	Mercury Total (mg/L)	Molybdenum Total (mg/L)	Selenium Total (mg/L)	Silver Total (mg/L)	Tin Total (mg/L)	Uranium Total (mg/L)
HBR1	n	12	12	12	12	12	12	12	12	0	4	1	1	1	1	4	1	4	1	1	1
	Min	0	0	0	0	0	0	0	0	-	<0.001	0.019	<0.001	<0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001	<0.001
	Median	102	0.019	14.83	0	0	0	0	0	-	<0.001	0.019	<0.001	<0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001	<0.001
	Max	1450	0.763	362.2	544	0	0.97	0	0	-	<0.001	0.019	<0.001	<0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001	<0.001
	Above Guideline	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HWA2	n	12	12	12	12	12	12	12	12	0	4	1	1	1	1	4	1	4	1	1	1
	Min	0	0	0	0	0	0	0	0	-	<0.001	0.019	<0.001	<0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001	<0.001
	Median	161.5	0.0595	29.25	0	0	0	0	0	-	<0.001	0.019	<0.001	<0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001	<0.001
	Max	3860	0.652	253.9	3590	0.062	35.8	510	0.062	-	<0.001	0.019	<0.001	<0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001	<0.001
	Above Guideline	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PWFP10	n	12	12	12	12	12	12	12	12	0	4	1	1	1	1	4	1	4	1	1	1
	Min	0	0	0	0	0	0	0	0	-	<0.001	0.02	<0.001	<0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001	<0.001
	Median	835.5	0.439	192.6	68	0.001	1.82	0	0	-	<0.001	0.02	<0.001	<0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001	<0.001
	Max	6880	1.55	605.1	5020	0.018	21.6	667	0.018	-	0.001	0.02	<0.001	<0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001	<0.001
	Above Guideline	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table A10 Warragamba system – water filtration plants – part 3

		Pesticides												Synthetic organic compounds & radionuclides			
Station Code	Statistic	2,4-D (ug/L)	Atrazine (ug/L)	Chlorfenvinphos (E+Z) (ug/L)	Chlorpyrifos (ug/L)	Diuron (ug/L)	Fluropanate (ug/L)	Glyphosate (ug/L)	Hexazinone (ug/L)	MCPA (ug/L)	Picloram (ug/L)	Simazine (ug/L)	Triclopyr (ug/L)	Benzene (ug/L)	Gross Alpha (Bq/L)	Gross Beta minus Potassium 40 (Bq/L)	Vinyl chloride (ug/L)
HBR1	n	4	4	4	4	4	4	4	4	4	4	4	4	4	1	1	4
	Min	<0.01	<0.01	<0.02	<0.02	<0.02	<0.1	<10	<0.02	<0.01	<0.05	<0.02	<0.01	<0.10	<0.05	<0.10	<0.050
	Median	<0.01	<0.01	<0.02	<0.02	<0.02	<0.1	<10	<0.02	<0.01	<0.05	<0.02	<0.01	<0.10	<0.05	<0.10	<0.050
	Max	<0.01	<0.01	<0.02	<0.02	<0.02	0.2	<10	<0.02	<0.01	<0.05	<0.02	<0.01	<0.10	<0.05	<0.10	<0.050
	Above Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HWA2	n	4	4	4	4	4	4	4	4	4	4	4	4	4	1	1	4
	Min	<0.01	<0.01	<0.02	<0.02	<0.02	<0.1	<10	<0.02	<0.01	<0.05	<0.02	<0.01	<0.10	<0.05	<0.10	<0.050
	Median	<0.01	<0.01	<0.02	<0.02	<0.02	<0.1	<10	<0.02	<0.01	<0.05	<0.02	<0.01	<0.10	<0.05	<0.10	<0.050
	Max	<0.01	<0.01	<0.02	<0.02	<0.02	0.1	<10	<0.02	<0.01	<0.05	<0.02	<0.01	<0.10	<0.05	<0.10	<0.050
	Above Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PWFP10	n	4	4	4	4	4	4	4	4	4	4	4	4	4	1	1	4
	Min	<0.01	<0.01	<0.02	<0.02	<0.02	<0.1	<10	<0.02	<0.01	<0.05	<0.02	<0.01	<0.10	<0.05	<0.10	<0.050
	Median	<0.01	<0.01	<0.02	<0.02	<0.02	<0.1	<10	<0.02	<0.01	<0.05	<0.02	<0.01	<0.10	<0.05	<0.10	<0.050
	Max	<0.01	<0.01	<0.02	<0.02	<0.02	0.1	<10	<0.02	<0.01	<0.05	<0.02	<0.01	<0.10	<0.05	<0.10	<0.050
	Above Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

2. Upper Nepean System

Table A11 Upper Nepean system – catchments – part 1

		Physicochemical														Nutrients						
Site Code	Statistic	Total Alkalinity as CaCO3 (mg/L)	Conductivity @25 C - Field (mS/cm)	Dissolved Organic Carbon (mg/L)	Dissolved Oxygen - Field (%Sat)	Dissolved Oxygen - Field (mg/L)	pH - Field	Sulphate (mg/L)	Suspended Solids (mg/L)	Temperature - Field (Deg C)	Total Hardness as CaCO3 (mg/L)	Total Organic Carbon (mg/L)	True Colour at 400nm (PES filter)	True Colour at 420nm (PES filter)	Turbidity - Field (NTU)	UV Absorbance @ 254nm	Nitrogen Ammoniacal (mg/L)	Nitrogen Oxidised (mg/L)	Nitrogen TKN (mg/L)	Nitrogen Total (mg/L)	Phosphorus Soluble Reactive (mg/L)	Phosphorus Total (mg/L)	Reactive Silica (mg/L)
E6006	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	<1	0.073	0.8	77.4	7.03	5.53	4	<1	9	7.4	1	1	3	0.75	0.064	<0.005	<0.002	<0.01	<0.01	<0.001	0.012	3.56
	Median	2	0.093	2	89.05	9.11	6.025	7	2	14.9	10.15	2.2	5.5	13.5	2.035	0.112	0.008	0.003	0.035	0.035	0.002	0.023	4.28
	Max	4	0.117	3.6	94.1	10.88	6.4	22	5	20	17.6	3.6	10	21	5.7	0.157	0.022	0.053	0.11	0.12	0.002	0.034	4.5
	Above Guideline	-	0	-	0	-	0	-	-	-	-	-	-	-	0	-	1	1	-	0	0	8	-
	Below Guideline	-	-	-	7	-	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E601	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	14	0.088	1.5	89.3	7.84	6.27	<1	<1	8.4	14.6	1.4	8	19	1.31	0.098	<0.005	0.065	0.06	0.17	<0.001	0.009	3.38
	Median	18	0.1095	2.55	97.1	10.01	7.295	1.5	<1	14.3	21	2.5	14.5	32.5	3.82	0.1385	0.006	0.338	0.12	0.465	0.0045	0.012	6.15
	Max	21	0.143	4.9	98.3	11.45	7.56	2	3	21.7	28.8	5	30	70	5.69	0.232	0.014	0.692	0.19	0.75	0.007	0.027	8.27
	Above Guideline	-	0	-	0	-	0	-	-	-	-	-	-	-	0	-	1	12	-	9	0	1	-
	Below Guideline	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E602	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	1	0.054	1.7	90.1	8.13	5.72	<1	<1	7.9	4.4	1.7	9	20	1.08	0.098	<0.005	<0.002	0.02	0.02	<0.001	<0.005	4.12
	Median	3.5	0.067	2.45	95.75	9.695	6.505	<1	<1	15.1	6.4	2.6	15	33	1.665	0.135	0.0055	0.003	0.07	0.07	0.002	<0.005	4.725
	Max	5	0.09	4.7	96.7	11.4	6.94	2	2	21.2	10.9	4.9	24	51	2.6	0.211	0.019	0.021	0.15	0.15	0.003	0.009	5.3
	Above Guideline	-	0	-	0	-	0	-	-	-	-	-	-	-	0	-	1	1	-	0	0	0	-
	Below Guideline	-	-	-	0	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E603	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	<1	0.051	1.5	78.2	6.97	5.66	<1	<1	8.4	4.4	1.6	3	7	0.66	0.058	<0.005	<0.002	0.03	0.03	<0.001	<0.005	4.06
	Median	1	0.08	2.2	91.7	9.25	5.895	1	<1	14.195	7.1	2.25	8	17	0.8	0.108	<0.005	<0.002	0.055	0.06	0.002	0.006	4.435
	Max	2	0.106	4.4	102.5	11.19	6.11	2	2	22.5	10.6	4.7	14	32	1.97	0.156	0.016	0.008	0.11	0.11	0.004	0.018	4.79
	Above Guideline	-	0	-	0	-	0	-	-	-	-	-	-	-	0	-	1	0	-	0	0	0	-
	Below Guideline	-	-	-	4	-	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E604	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	10	0.099	1	84.1	7.85	6.67	2	<1	8.1	16.8	1	3	6	0.12	0.03	<0.005	0.107	0.02	0.13	0.002	<0.005	3.49
	Median	13.5	0.1235	1.6	90.1	9.15	6.98	4	<1	15.25	21.25	1.6	5	10.5	0.42	0.048	<0.005	0.16	0.075	0.215	0.0025	0.005	4.28
	Max	17	0.137	2.7	96.7	11.29	7.16	5	2	19.5	26.5	2.7	8	17	0.91	0.08	0.007	0.32	0.16	0.42	0.005	0.015	5.01
	Above Guideline	-	0	-	0	-	0	-	-	-	-	-	-	-	0	-	0	12	-	4	0	0	-
	Below Guideline	-	-	-	6	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E608	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	18	0.107	1	82.1	7.8	6.68	3	<1	7.8	22.8	1.1	4	8	2.22	0.049	<0.005	0.057	0.02	0.13	0.001	0.006	5.3
	Median	26.5	0.1345	1.75	86.85	8.915	6.975	4	<1	14.25	26.75	1.7	6.5	13.5	2.81	0.074	0.0055	0.1095	0.065	0.15	0.0035	0.0095	6.09
	Max	42	0.167	2.8	92.7	10.91	7.27	5	2	17.8	39.3	2.9	10	21	4.25	0.112	0.014	0.155	0.13	0.25	0.007	0.018	6.64
	Above Guideline	-	0	-	0	-	0	-	-	-	-	-	-	-	0	-	1	12	-	0	0	0	-
	Below Guideline	-	-	-	7	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E609	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	7	0.102	2.3	75.6	7.57	5.27	3	<1	7.7	13.4	2.4	8	17	2.27	0.102	0.009	0.017	0.04	0.07	0.001	0.008	4.47
	Median	9	0.1085	3.5	82	8.4	6.425	4	2	14.25	15.95	3.65	13.5	30	3.53	0.1645	0.0235	0.046	0.09	0.145	0.003	0.013	4.99
	Max	13	0.117	4.4	89.3	10.58	6.71	6	3	16.8	19.3	4.6	17	39	4.05	0.218	0.039	0.099	0.2	0.24	0.005	0.019	5.66
	Above Guideline	-	0	-	0	-	0	-	-	-	-	-	-	-	0	-	10	12	-	0	0	0	-

		Physicochemical															Nutrients						
Site Code	Statistic	Total Alkalinity as CaCO3 (mg/L)	Conductivity @25 C - Field (mS/cm)	Dissolved Organic Carbon (mg/L)	Dissolved Oxygen - Field (%Sat)	Dissolved Oxygen - Field (mg/L)	pH - Field	Sulphate (mg/L)	Suspended Solids (mg/L)	Temperature - Field (Deg C)	Total Hardness as CaCO3 (mg/L)	Total Organic Carbon (mg/L)	True Colour at 400nm (PES filter)	True Colour at 420nm (PES filter)	Turbidity - Field (NTU)	UV Absorbance @ 254nm	Nitrogen Ammoniacal (mg/L)	Nitrogen Oxidised (mg/L)	Nitrogen TKN (mg/L)	Nitrogen Total (mg/L)	Phosphorus Soluble Reactive (mg/L)	Phosphorus Total (mg/L)	Reactive Silica (mg/L)
	Below Guideline	-	-	-	12	-	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E610	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	3	0.067	0.8	79.55	7.57	6.19	2	<1	8.2	7	0.7	4	7	0.55	0.042	<0.005	<0.002	<0.01	<0.01	0.001	<0.005	3.84
	Median	12	0.0845	2.1	91.65	9.45	6.965	3.5	<1	13.4	18.1	2.1	8.5	19.5	0.79	0.077	<0.005	0.004	0.06	0.06	0.002	0.0055	4.75
	Max	22	0.113	4.8	96	11.2	7.3	6	8	17.5	30.1	4.9	20	44	1.56	0.176	0.016	0.01	0.12	0.12	0.004	0.014	5.87
	Above Guideline	-	0	-	0	-	0	-	-	-	-	-	-	-	0	-	1	0	-	0	0	0	-
	Below Guideline	-	-	-	4	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E676	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	<1	0.069	2.4	89.3	7.97	5.18	2	<1	8.4	5.6	2.7	9	19	0.96	0.121	<0.005	<0.002	0.08	0.08	<0.001	<0.005	2.83
	Median	1	0.09	5.9	92.45	9.01	5.535	2	2	17.1	7.85	6.3	24	52.5	1.965	0.2825	0.0095	<0.002	0.155	0.155	0.001	0.006	3.08
	Max	2	0.1	11.2	96.3	10.78	6.3	3	4	21.2	10.6	11.9	50	110	3.44	0.475	0.016	0.007	0.25	0.25	0.004	0.012	3.6
	Above Guideline	-	0	-	0	-	0	-	-	-	-	-	-	-	0	-	3	0	-	0	0	0	-
	Below Guideline	-	-	-	2	-	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E680	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	3	0.058	2.1	73.9	7.21	6.45	2	<1	8.8	7.9	2.1	9	20	0.53	0.081	<0.005	<0.002	0.08	0.08	<0.001	<0.005	1.66
	Median	15.5	0.101	3.35	92.6	9.145	6.995	2	1.5	15.45	20.3	3.3	15.5	33.5	1.09	0.1465	0.0165	0.0295	0.16	0.19	0.002	0.012	3.535
	Max	18	0.106	8	95.4	11.01	7.38	5	6	20.2	22.3	8.3	42	93	6.36	0.373	0.057	0.054	0.26	0.31	0.004	0.024	5.01
	Above Guideline	-	0	-	0	-	0	-	-	-	-	-	-	-	0	-	8	7	-	1	0	2	-
	Below Guideline	-	-	-	4	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E697	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	13	0.084	1.4	85.1	7.04	6.55	<1	<1	8.1	14.1	1.6	6	14	2.57	0.103	<0.005	0.123	0.06	0.26	0.003	0.006	4.48
	Median	17	0.098	2.45	93.55	9.74	7.215	1	2	14.25	19.85	2.45	11.5	26.5	4.795	0.139	0.013	0.3975	0.125	0.53	0.0045	0.018	6.965
	Max	22	0.107	4.9	96.5	11.15	7.49	2	5	21	25	5	27	57	7.95	0.264	0.029	0.76	0.3	0.98	0.007	0.032	8.85
	Above Guideline	-	0	-	0	-	0	-	-	-	-	-	-	-	0	-	6	12	-	12	0	5	-
	Below Guideline	-	-	-	4	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table A12 Upper Nepean system – catchments – part 2

		Metals										Cyanobacteria									Indicator Bacteria		
Site Code	Statistic	Aluminium Filtered (mg/L)	Aluminium Total (mg/L)	Calcium Filtered (mg/L)	Iron Filtered (mg/L)	Iron Total (mg/L)	Magnesium Filtered (mg/L)	Manganese Filtered (mg/L)	Manganese Total (mg/L)	Potassium Filtered (mg/L)	Sodium Filtered (mg/L)	Chlorophyll-a (ug/L)	Algal Count - Total (cells/mL)	Algal Biovolume - Total (mm3/L)	Algal ASU - Total (ASU/mL)	Algal Count - Cyanobacteria (cells/mL)	Algal Biovolume - Cyanobacteria (mm3/L)	Algal ASU - Cyanobacteria (ASU/mL)	Algal Count - Toxic Cyanobacteria (cells/mL)	Algal Biovolume - Toxic Cyanobacteria (mm3/L)	Clostridium perfringens (cfu/100 mL) or (spores/100mL)	E. coli (orgs/100mL) or (CFU/100mL)	Enterococci (cfu/100ml)
E6006	n	12	12	12	12	12	12	12	12	12	12	12	0	0	0	0	0	0	0	0	12	12	12
	Min	<0.01	0.03	0.5	0.28	0.72	1.5	0.082	0.086	0.3	10	0.23	-	-	-	-	-	-	-	-	<1	<1	<1
	Median	0.025	0.065	0.9	0.525	1.31	1.95	0.3035	0.308	0.7	11.6	0.33	-	-	-	-	-	-	-	-	<1	5.5	1.5
	Max	0.1	0.15	1.6	1.5	2.24	3.3	0.638	0.674	0.9	14.1	0.67	-	-	-	-	-	-	-	-	1	65	64
	Above Guideline	-	7	-	-	-	-	-	0	-	-	0	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E601	n	12	12	12	12	12	12	12	12	12	12	12	0	0	0	0	0	0	0	0	12	12	12
	Min	0.02	0.04	2.2	0.23	0.52	2.2	0.003	0.009	0.6	9.5	0.38	-	-	-	-	-	-	-	-	<1	4	12
	Median	0.055	0.105	3.05	0.355	0.655	3.2	0.007	0.012	1.05	11.6	0.865	-	-	-	-	-	-	-	-	2	11	29
	Max	0.12	0.27	4.1	0.63	0.86	4.5	0.014	0.023	1.3	15.7	2.8	-	-	-	-	-	-	-	-	12	83	88
	Above Guideline	-	11	-	-	-	-	-	0	-	-	0	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E602	n	12	12	12	12	12	12	12	12	12	12	12	0	0	0	0	0	0	0	0	12	12	12
	Min	0.02	0.04	0.3	0.15	0.37	0.9	0.006	0.007	0.2	8.6	<0.20	-	-	-	-	-	-	-	-	<1	<1	1
	Median	0.035	0.06	0.5	0.33	0.74	1.25	0.014	0.0185	0.4	9.9	0.325	-	-	-	-	-	-	-	-	<1	10.5	18
	Max	0.09	0.14	0.9	0.46	0.96	2.1	0.027	0.032	0.6	13.1	1.03	-	-	-	-	-	-	-	-	2	28	93
	Above Guideline	-	8	-	-	-	-	-	0	-	-	0	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E603	n	12	12	12	12	12	12	12	12	12	12	12	0	0	0	0	0	0	0	0	12	12	12
	Min	0.02	0.03	0.2	0.04	0.29	0.9	0.009	0.009	0.3	8.8	<0.20	-	-	-	-	-	-	-	-	<1	<1	<1
	Median	0.03	0.05	0.35	0.195	0.455	1.45	0.0245	0.027	0.7	12.4	0.42	-	-	-	-	-	-	-	-	<1	2.5	3.5
	Max	0.09	0.13	1	0.62	0.95	2.2	0.043	0.048	1	15.7	1.1	-	-	-	-	-	-	-	-	6	21	130
	Above Guideline	-	4	-	-	-	-	-	0	-	-	0	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E604	n	12	12	12	12	12	12	12	12	12	12	12	1	1	1	1	1	1	1	1	12	12	12
	Min	<0.01	0.01	2.6	<0.01	0.03	2.5	0.003	0.004	0.7	11.6	0.2	816	0.176	192.5	680	0.018	16.7	680	0.018	<1	<1	<1
	Median	0.01	0.02	3.2	0.02	0.04	3.25	0.006	0.0065	1.2	14.75	0.51	816	0.176	192.5	680	0.018	16.7	680	0.018	1	15.5	20
	Max	0.03	0.06	4	0.03	0.13	4	0.008	0.015	1.5	16.8	10.69	816	0.176	192.5	680	0.018	16.7	680	0.018	28	72	350
	Above Guideline	-	1	-	-	-	-	-	0	-	-	1	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E608	n	12	12	12	12	12	12	12	12	12	12	12	0	0	0	0	0	0	0	0	12	12	12
	Min	<0.01	0.06	3.5	0.04	0.17	3.3	0.011	0.015	0.6	13.2	<0.20	-	-	-	-	-	-	-	-	<1	<1	3
	Median	0.03	0.085	4.15	0.105	0.24	3.95	0.0155	0.0195	1	14.2	0.305	-	-	-	-	-	-	-	-	<1	7	37.5
	Max	0.15	0.18	6	0.15	0.59	5.9	0.022	0.057	1.3	17.8	1.26	-	-	-	-	-	-	-	-	3	66	440
	Above Guideline	-	12	-	-	-	-	-	0	-	-	0	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E609	n	12	12	12	12	12	12	12	12	12	12	12	0	0	0	0	0	0	0	0	12	12	12
	Min	0.03	0.06	2.3	0.24	0.51	1.8	0.062	0.064	0.4	12.7	0.2	-	-	-	-	-	-	-	-	<1	1	<1
	Median	0.06	0.105	2.9	0.33	0.885	2	0.0775	0.0815	0.8	14.15	0.485	-	-	-	-	-	-	-	-	<1	28.5	69
	Max	0.09	0.15	3.6	0.47	1.18	2.5	0.095	0.102	1	18.7	2.15	-	-	-	-	-	-	-	-	4	190	1100
	Above Guideline	-	12	-	-	-	-	-	0	-	-	0	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E610	n	12	12	12	12	12	12	12	12	12	12	12	0	0	0	0	0	0	0	0	12	12	12
	Min	0.01	<0.01	1	0.07	0.1	1.1	0.01	0.01	0.3	7.5	0.23	-	-	-	-	-	-	-	-	<1	1	1
	Median	0.03	0.04	2.65	0.1	0.195	2.65	0.0125	0.014	0.4	8.7	0.245	-	-	-	-	-	-	-	-	<1	20	13.5

		Metals										Cyanobacteria									Indicator Bacteria		
Site Code	Statistic	Aluminium Filtered (mg/L)	Aluminium Total (mg/L)	Calcium Filtered (mg/L)	Iron Filtered (mg/L)	Iron Total (mg/L)	Magnesium Filtered (mg/L)	Manganese Filtered (mg/L)	Manganese Total (mg/L)	Potassium Filtered (mg/L)	Sodium Filtered (mg/L)	Chlorophyll-a (ug/L)	Algal Count - Total (cells/mL)	Algal Biovolume - Total (mm3/L)	Algal ASU - Total (ASU/mL)	Algal Count - Cyanobacteria (cells/mL)	Algal Biovolume - Cyanobacteria (mm3/L)	Algal ASU - Cyanobacteria (ASU/mL)	Algal Count - Toxic Cyanobacteria (cells/mL)	Algal Biovolume - Toxic Cyanobacteria (mm3/L)	Clostridium perfringens (cfu/100 mL) or (spores/100mL)	E. coli (orgs/100mL) or (CFU/100mL)	Enterococci (cfu/100ml)
	Max	0.12	0.16	4.8	0.16	0.36	4.4	0.019	0.022	0.8	10.1	0.7	-	-	-	-	-	-	-	-	3	96	410
	Above Guideline	-	5	-	-	-	-	-	0	-	-	0	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E676	n	12	12	12	12	12	12	12	12	12	12	12	0	0	0	0	0	0	0	0	12	12	12
	Min	0.07	0.14	0.6	0.12	0.39	0.9	0.008	0.009	0.1	10.1	0.2	-	-	-	-	-	-	-	-	<1	<1	<1
	Median	0.17	0.225	1.05	0.3	0.69	1.3	0.0115	0.0125	0.35	13.5	0.465	-	-	-	-	-	-	-	-	1	7.5	2.5
	Max	0.31	0.62	1.6	0.47	1.22	1.7	0.021	0.025	0.6	16	1.3	-	-	-	-	-	-	-	-	53	4500	380
	Above Guideline	-	12	-	-	-	-	-	0	-	-	0	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E680	n	12	12	12	12	12	12	12	12	12	12	12	2	2	2	2	2	2	2	2	12	12	12
	Min	<0.01	0.01	1.2	0.2	0.27	1.2	0.011	0.02	0.5	7.6	0.6	1170	0.432	228.4	408	0	1.59	0	0	<1	1	1
	Median	0.02	0.02	3.1	0.375	0.695	3	0.043	0.052	0.75	11.3	2.815	6000	3.531	1141.7	569.5	0.002	6.195	0	0	3	32.5	25.5
	Max	0.24	0.37	3.5	0.62	1.1	3.3	0.074	0.089	0.9	13.5	13.9	10830	6.63	2055	731	0.004	10.8	0	0	31	260	120
	Above Guideline	-	3	-	-	-	-	-	0	-	-	2	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E697	n	12	12	12	12	12	12	12	12	12	12	12	0	0	0	0	0	0	0	0	12	12	12
	Min	0.03	0.05	2.1	0.19	0.43	2.1	0.01	0.011	0.5	8.8	0.38	-	-	-	-	-	-	-	-	<1	21	10
	Median	0.08	0.15	3.05	0.4	0.78	2.95	0.015	0.0175	0.9	10.4	1.25	-	-	-	-	-	-	-	-	6	52	39
	Max	0.13	0.33	3.9	0.72	1.17	3.7	0.032	0.05	1.6	11.5	3.57	-	-	-	-	-	-	-	-	11	580	340
	Above Guideline	-	11	-	-	-	-	-	0	-	-	0	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table A13 Upper Nepean system – storages – part 1

		Physicochemical															Nutrients						
Station Code	Statistic	Total Alkalinity as CaCO3 (mg/L)	Conductivity @25 C - Field (mS/cm)	Dissolved Organic Carbon (mg/L)	Dissolved Oxygen - Field (%Sat)	Dissolved Oxygen - Field (mg/L)	pH - Field	Sulphate (mg/L)	Suspended Solids (mg/L)	Temperature - Field (Deg C)	Total Hardness as CaCO3 (mg/L)	Total Organic Carbon (mg/L)	True Colour at 400nm (PES filter)	True Colour at 420nm (PES filter)	Turbidity - Field (NTU)	UV Absorbance @ 254nm	Nitrogen Ammoniacal (mg/L)	Nitrogen Oxidised (mg/L)	Nitrogen TKN (mg/L)	Nitrogen Total (mg/L)	Phosphorus Soluble Reactive (mg/L)	Phosphorus Total (mg/L)	Reactive Silica (mg/L)
DAV1	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	<1	0.028	2.8	74.9	6.83	5.57	1	<1	12.52	4.1	2.9	4	9	0.17	0.064	<0.005	<0.002	0.11	0.12	<0.001	<0.005	1.41
	Median	3	0.0495	3.3	99.1	8.75	6.2	1.5	<1	18.665	5.2	3.4	6	13.5	0.335	0.0815	0.0105	0.031	0.145	0.18	<0.001	<0.005	1.67
	Max	6	0.052	4.4	109.7	10.12	6.56	2	2	23.58	5.6	4.4	14	29	1.05	0.13	0.046	0.044	0.19	0.22	0.002	0.008	2.1
	Above Guideline	-	-	-	0	-	0	-	-	-	-	-	-	-	0	-	6	10	-	0	0	0	-
	Below Guideline	-	-	-	4	-	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DAV16	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	2	0.048	3	80.3	7.36	5.7	1	<1	12.66	4.3	3	4	9	0.18	0.068	<0.005	<0.002	0.12	0.14	<0.001	<0.005	1.33
	Median	3	0.05	3.4	96.9	8.9	6.515	1.5	<1	19.205	5.2	3.45	6	13	0.345	0.0815	<0.005	0.015	0.14	0.165	<0.001	<0.005	1.625
	Max	5	0.051	3.9	107.9	9.81	6.99	2	2	23.96	5.6	3.8	10	22	0.62	0.107	0.036	0.043	0.2	0.22	0.002	0.006	1.75
	Above Guideline	-	-	-	0	-	0	-	-	-	-	-	-	-	0	-	5	7	-	0	0	0	-
	Below Guideline	-	-	-	4	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DAV7	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	2	0.048	3	79.2	7.01	6	1	<1	12.33	4.8	3.1	5	11	0.33	0.069	<0.005	<0.002	0.11	0.14	<0.001	<0.005	1.17
	Median	3	0.0505	3.45	95	8.675	6.51	1.5	1	19.94	5.2	3.5	8	16.5	0.48	0.0935	<0.005	0.0105	0.145	0.17	0.001	<0.005	1.415
	Max	3	0.052	3.7	104.1	9.76	6.93	2	2	24.15	6	3.9	9	20	0.83	0.1	0.038	0.039	0.25	0.25	0.002	0.007	1.73
	Above Guideline	-	-	-	0	-	0	-	-	-	-	-	-	-	0	-	5	6	-	0	0	0	-
	Below Guideline	-	-	-	5	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DCA1	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	1	0.06	4.2	81.1	7.94	5.68	2	<1	11.95	5.4	4.4	16	33	0.33	0.141	<0.005	<0.002	0.14	0.15	0.001	<0.005	1.6
	Median	2	0.065	5.3	95.55	8.385	6.06	2	<1	18.995	6.45	5.25	20.5	44	0.71	0.1945	0.013	0.0175	0.18	0.19	0.001	0.006	1.85
	Max	3	0.07	6.6	98.4	9.74	6.58	3	2	24.84	7.4	7	31	70	2.45	0.29	0.053	0.034	0.29	0.3	0.003	0.011	2.16
	Above Guideline	-	-	-	0	-	0	-	-	-	-	-	-	-	0	-	7	7	-	0	0	1	-
	Below Guideline	-	-	-	4	-	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DCA2	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	<1	0.06	4.2	82.9	7.57	5.58	2	<1	11.74	5.4	4.3	16	36	0.39	0.145	<0.005	<0.002	0.14	0.14	<0.001	<0.005	1.65
	Median	2	0.066	5.3	90.8	8.505	6.155	2	<1	18.765	6.65	5.25	21.5	46.5	0.81	0.1975	0.0145	0.0195	0.18	0.195	<0.001	0.006	1.9
	Max	3	0.071	6.8	95.6	9.75	6.46	3	2	23.74	8.8	6.7	28	59	1.98	0.265	0.045	0.037	0.22	0.24	0.002	0.009	2.36
	Above Guideline	-	-	-	0	-	0	-	-	-	-	-	-	-	0	-	7	8	-	0	0	0	-
	Below Guideline	-	-	-	6	-	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DCA3	n	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
	Min	1	0.06	4.2	87.3	7.75	5.61	2	<1	11.63	5.2	4.4	15	33	0.49	0.144	<0.005	<0.002	0.16	0.16	<0.001	<0.005	1.72
	Median	1	0.0655	5.3	92	8.52	6.04	2	1	18.505	6.3	5.35	21	44.5	1.045	0.2	0.0095	0.014	0.18	0.2	<0.001	0.007	1.865
	Max	2	0.068	6.5	95.7	9.59	6.42	3	2	23.52	6.8	6.2	26	55	1.51	0.251	0.025	0.031	0.2	0.22	0.001	0.01	2.09
	Above Guideline	-	-	-	0	-	0	-	-	-	-	-	-	-	0	-	3	3	-	0	0	0	-
	Below Guideline	-	-	-	3	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DCO1	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	8	0.071	3.9	68.4	7.05	6.44	2	<1	11.83	9.9	4.1	7	15	0.53	0.106	<0.005	<0.002	0.19	0.19	<0.001	<0.005	0.26
	Median	9	0.075	4.6	97.2	8.375	6.945	2	1.5	19.9	10.9	4.8	13	29	0.925	0.146	0.0075	0.003	0.225	0.245	<0.001	0.008	0.68
	Max	10	0.08	5.3	101.7	9.94	7.6	4	2	24.88	12.1	5.3	20	43	1.82	0.198	0.085	0.051	0.27	0.32	0.003	0.013	2.19
	Above Guideline	-	-	-	0	-	0	-	-	-	-	-	-	-	0	-	4	4	-	0	0	2	-
	Below Guideline	-	-	-	4	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DCO3	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	8	0.071	3.9	73.8	7.62	6.32	2	<1	11.78	9.9	4.1	7	16	0.61	0.11	<0.005	<0.002	0.18	0.19	<0.001	<0.005	0.27
	Median	9	0.0755	4.7	95.9	8.3	7.085	2	1	20.18	10.65	4.8	13.5	29.5	0.94	0.1485	0.0085	0.006	0.215	0.235	<0.001	0.0075	0.69

		Physicochemical															Nutrients						
Station Code	Statistic	Total Alkalinity as CaCO3 (mg/L)	Conductivity @25 C - Field (mS/cm)	Dissolved Organic Carbon (mg/L)	Dissolved Oxygen - Field (%Sat)	Dissolved Oxygen - Field (mg/L)	pH - Field	Sulphate (mg/L)	Suspended Solids (mg/L)	Temperature - Field (Deg C)	Total Hardness as CaCO3 (mg/L)	Total Organic Carbon (mg/L)	True Colour at 400nm (PES filter)	True Colour at 420nm (PES filter)	Turbidity - Field (NTU)	UV Absorbance @ 254nm	Nitrogen Ammoniacal (mg/L)	Nitrogen Oxidised (mg/L)	Nitrogen TKN (mg/L)	Nitrogen Total (mg/L)	Phosphorus Soluble Reactive (mg/L)	Phosphorus Total (mg/L)	Reactive Silica (mg/L)
	Max	11	0.08	5.6	102.2	10.07	7.44	2	2	24.71	12.1	5.3	20	43	1.9	0.205	0.078	0.052	0.24	0.27	0.001	0.012	3.29
	Above Guideline	-	-	-	0	-	0	-	-	-	-	-	-	-	0	-	5	5	-	0	0	1	-
	Below Guideline	-	-	-	4	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DNE2 / DNE1	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	7	0.063	3.7	81.4	7.25	6.37	1	<1	11.93	9.3	3.7	16	35	0.87	0.148	<0.005	0.158	0.11	0.28	<0.001	0.008	2.01
	Median	8	0.0715	4.55	91.7	8.585	6.53	1	1	18.22	10.65	4.5	19.5	43.5	1.725	0.179	0.0235	0.179	0.205	0.375	0.002	0.0135	2.775
	Max	12	0.077	5.9	110	10.75	7.1	3	3	23.98	11.9	6.2	26	58	7.49	0.264	0.049	0.217	0.28	0.49	0.004	0.023	3.88
	Above Guideline	-	-	-	0	-	0	-	-	-	-	-	-	-	0	-	9	12	-	8	0	10	-
	Below Guideline	-	-	-	6	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DNE6	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	7	0.062	3.8	79.2	7.67	6.23	1	<1	11.81	9	3.7	15	32	0.83	0.143	<0.005	0.116	0.1	0.25	<0.001	0.006	1.9
	Median	8	0.072	4.55	96.9	8.875	6.765	1.5	1.5	18.71	10.3	4.65	19.5	44.5	1.87	0.181	0.0105	0.185	0.19	0.365	0.0015	0.011	2.78
	Max	9	0.077	6.2	111	10.02	7.31	3	7	24.35	11.9	6.2	31	68	7.35	0.267	0.03	0.219	0.3	0.49	0.003	0.021	3.68
	Above Guideline	-	-	-	1	-	0	-	-	-	-	-	-	-	0	-	6	12	-	7	0	6	-
	Below Guideline	-	-	-	4	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table A14 Upper Nepean system – storages – part 2

		Metals										Cyanobacteria												Indicator bacteria		
Station Code	Statistic	Aluminium Filtered (mg/L)	Aluminium Total (mg/L)	Calcium Filtered (mg/L)	Iron Filtered (mg/L)	Iron Total (mg/L)	Magnesium Filtered (mg/L)	Manganese Filtered (mg/L)	Manganese Total (mg/L)	Potassium Filtered (mg/L)	Sodium Filtered (mg/L)	Chlorophyll-a (ug/L)	Algal Count - Total (cells/mL)	Algal Biovolume - Total (mm3/L)	Algal ASU - Total (ASU/mL)	Algal Count - Cyanobacteria (cells/mL)	Algal Biovolume - Cyanobacteria (mm3/L)	Algal ASU - Cyanobacteria (ASU/mL)	Algal Count - Toxic Cyanobacteria (cells/mL)	Algal Biovolume - Toxic Cyanobacteria (mm3/L)	Microcystin LR+RR+YR (ug/L)	2-Methylisoborneol (MIB) (ng/L)	Geosmin (ng/L)	Clostridium perfringens (cfu/100 mL) or (spores/100mL)	E. coli (orgs/100mL) or (CFU/100mL)	Enterococci (cfu/100ml)
DAV1	n	12	12	12	12	12	12	12	12	12	12	12	0	0	0	0	0	0	0	0	0	0	0	12	12	12
	Min	<0.01	<0.01	0.5	0.04	0.08	0.7	0.002	0.004	0.5	6.6	0.5	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1
	Median	0.02	0.035	0.6	0.065	0.115	0.9	0.0105	0.0155	0.7	7.15	2.06	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1
	Max	0.08	0.1	0.6	0.12	0.23	1	0.102	0.115	0.9	7.7	4.81	-	-	-	-	-	-	-	-	-	-	-	1	12	7
	Above Guideline	-	3	-	-	-	-	-	0	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DAV16	n	12	12	12	12	12	12	12	12	12	12	12	0	0	0	0	0	0	0	0	0	0	0	12	12	12
	Min	<0.01	0.01	0.4	0.03	0.09	0.8	0.001	0.004	0.6	6.8	0.6	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1
	Median	0.02	0.03	0.6	0.07	0.13	0.9	0.012	0.0165	0.6	7.25	2.8	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1
	Max	0.05	0.07	0.6	0.1	0.2	1	0.047	0.067	0.9	7.7	4.26	-	-	-	-	-	-	-	-	-	-	-	1	3	1
	Above Guideline	-	2	-	-	-	-	-	0	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DAV7	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	0	12	12	12	12	12
	Min	<0.01	0.01	0.5	0.05	0.11	0.8	0.003	0.006	0.6	6.9	2.26	1230	0.259	152.5	0	0	0	0	0	-	<1	<1	<1	<1	<1
	Median	0.02	0.035	0.6	0.08	0.17	0.9	0.017	0.0225	0.7	7.35	3.905	3085	1.61	421.95	289	0	1.74	0	0	-	<1	<1	<1	<1	<1
	Max	0.04	0.06	0.7	0.13	0.3	1.1	0.039	0.046	0.8	7.9	6	11290	2.92	1202	5970	0.015	25.4	0	0	-	<1	3	1	5	14
	Above Guideline	-	2	-	-	-	-	-	0	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DCA1	n	12	12	12	12	12	12	12	12	12	12	12	3	3	3	3	3	3	3	3	0	0	0	12	12	12
	Min	0.05	0.08	0.7	0.16	0.32	0.9	0.01	0.015	0.6	7.2	0.9	12490	0.433	278.2	2570	0.003	12.4	0	0	-	-	-	<1	<1	<1
	Median	0.1	0.125	0.85	0.305	0.485	1.05	0.02	0.0275	0.7	9.55	2.665	12960	0.897	673.1	7300	0.005	21.5	0	0	-	-	-	<1	<1	<1
	Max	0.15	0.19	1	0.43	0.74	1.2	0.046	0.051	0.8	11.1	5.7	26230	2.61	720.8	24500	0.019	78.4	0	0	-	-	-	1	90	15
	Above Guideline	-	12	-	-	-	-	-	0	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DCA2	n	12	12	12	12	12	12	12	12	12	12	12	1	1	1	1	1	1	1	1	0	0	0	12	12	12
	Min	0.04	0.06	0.7	0.14	0.4	0.9	0.013	0.017	0.6	7.8	1.99	17030	1.77	926.9	8910	0.005	24.2	0	0	-	-	-	<1	<1	<1
	Median	0.08	0.12	0.9	0.28	0.495	1.1	0.0265	0.033	0.65	9.5	2.79	17030	1.77	926.9	8910	0.005	24.2	0	0	-	-	-	<1	1	<1
	Max	0.16	0.2	1.2	0.4	0.76	1.4	0.036	0.047	0.9	12.3	5.2	17030	1.77	926.9	8910	0.005	24.2	0	0	-	-	-	1	51	2
	Above Guideline	-	12	-	-	-	-	-	0	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DCA3	n	6	6	6	6	6	6	6	6	6	6	6	1	1	1	1	1	1	1	1	0	0	0	6	6	6
	Min	0.05	0.06	0.6	0.18	0.39	0.9	0.012	0.02	0.6	8	1.4	14110	1.4	752.6	5920	0.004	19.3	0	0	-	-	-	<1	<1	<1
	Median	0.09	0.135	0.8	0.275	0.435	1.05	0.0175	0.026	0.6	9.8	3.215	14110	1.4	752.6	5920	0.004	19.3	0	0	-	-	-	<1	<1	<1
	Max	0.14	0.18	0.9	0.36	0.63	1.1	0.032	0.035	0.8	10.6	7.2	14110	1.4	752.6	5920	0.004	19.3	0	0	-	-	-	1	46	2
	Above Guideline	-	6	-	-	-	-	-	0	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DCO1	n	12	12	12	12	12	12	12	12	12	12	12	7	7	7	7	7	7	7	7	0	0	0	12	12	12
	Min	<0.01	<0.01	1.4	0.02	0.14	1.5	<0.001	0.011	0.8	9.5	1.6	10190	0.647	309.7	1770	0	3.33	0	0	-	-	-	<1	<1	<1
	Median	0.03	0.04	1.6	0.16	0.275	1.65	0.005	0.016	0.9	10.15	5.805	27190	1.23	731.2	17930	0.007	43.5	0	0	-	-	-	<1	<1	<1
	Max	0.08	0.09	1.7	0.31	0.66	1.9	0.154	0.171	1.1	11.2	9.28	98720	5.24	2585	91000	0.039	205.6	0	0	-	-	-	2	2	6
	Above Guideline	-	4	-	-	-	-	-	0	-	-	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DCO3	n	12	12	12	12	12	12	12	12	12	12	12	8	8	8	8	8	8	8	8	0	0	0	12	12	12
	Min	<0.01	0.01	1.4	0.03	0.14	1.5	0.001	0.012	0.8	9.4	1.25	4530	0.717	397.1	0	0	0	0	0	-	-	-	<1	<1	<1
	Median	0.03	0.04	1.6	0.17	0.275	1.65	0.0055	0.018	1	10.05	5.655	27515	1.255	753	20145	0.0115	55.25	0	0	-	-	-	<1	<1	<1

		Metals										Cyanobacteria												Indicator bacteria		
Station Code	Statistic	Aluminium Filtered (mg/L)	Aluminium Total (mg/L)	Calcium Filtered (mg/L)	Iron Filtered (mg/L)	Iron Total (mg/L)	Magnesium Filtered (mg/L)	Manganese Filtered (mg/L)	Manganese Total (mg/L)	Potassium Filtered (mg/L)	Sodium Filtered (mg/L)	Chlorophyll-a (ug/L)	Algal Count - Total (cells/mL)	Algal Biovolume - Total (mm3/L)	Algal ASU - Total (ASU/mL)	Algal Count - Cyanobacteria (cells/mL)	Algal Biovolume - Cyanobacteria (mm3/L)	Algal ASU - Cyanobacteria (ASU/mL)	Algal Count - Toxic Cyanobacteria (cells/mL)	Algal Biovolume - Toxic Cyanobacteria (mm3/L)	Microcystin LR+RR+YR (ug/L)	2-Methylisoborneol (MIB) (ng/L)	Geosmin (ng/L)	Clostridium perfringens (cfu/100 mL) or (spores/100mL)	E. coli (orgs/100mL) or (CFU/100mL)	Enterococci (cfu/100ml)
	Max	0.08	0.09	1.7	0.3	0.6	1.9	0.099	0.108	1.1	10.9	7.8	89310	9.94	3749	76060	0.048	192	531	0.013	-	-	-	<1	11	9
	Above Guideline	-	4	-	-	-	-	-	0	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DNE2 / DNE1	n	12	12	12	12	12	12	12	12	12	12	38	38	38	38	38	38	38	38	38	0	38	38	12	12	12
	Min	0.04	0.05	1.3	0.2	0.31	1.4	0.004	0.01	1	7.8	0.74	85	0.037	26.9	0	0	0	0	0	-	<1	<1	<1	<1	<1
	Median	0.13	0.155	1.55	0.265	0.425	1.65	0.0155	0.0215	1.1	8.85	1.905	3210	0.85	385.55	272	0	1.15	0	0	-	<1	<1	<1	<1	<1
	Max	0.27	0.46	1.8	0.33	0.68	1.8	0.087	0.103	1.2	9.5	15.3	12770	3.1	1312	10640	0.009	23	0	0	-	<1	<1	7	8	4
	Above Guideline	-	11	-	-	-	-	-	0	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DNE6	n	12	12	12	12	12	12	12	12	12	12	12	4	4	4	4	4	4	4	4	0	0	0	12	12	12
	Min	0.04	0.05	1.3	0.2	0.32	1.4	0.004	0.011	1	7.9	1.07	2130	2.1	513.4	0	0	0	0	0	-	-	-	<1	<1	<1
	Median	0.125	0.155	1.5	0.245	0.38	1.6	0.0065	0.021	1.1	9	4.23	25830	4.34	1875	18050	0.0075	40.655	0	0	-	-	-	<1	1	<1
	Max	0.29	0.52	1.8	0.34	0.62	1.8	0.065	0.066	1.2	9.6	6.84	46000	7.02	2690	42090	0.017	93.3	0	0	-	-	-	7	10	1
	Above Guideline	-	11	-	-	-	-	-	0	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table A15 Upper Nepean system – storages – part 3

		Health related physical chemical									
Site Code	Statistic	Arsenic Total (mg/L)	Barium Total (mg/L)	Beryllium Total (mg/L)	Boron Total (mg/L)	Iodide (mg/L)	Mercury Total (mg/L)	Molybdenum Total (mg/L)	Selenium Total (mg/L)	Silver Total (mg/L)	Tin Total (mg/L)
DAV1	n	2	2	2	2	2	2	2	2	2	2
	Min	<0.001	0.007	<0.001	<0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001
	Median	<0.001	0.0075	<0.001	<0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001
	Max	<0.001	0.008	<0.001	<0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001
	Above Guideline	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-
DAV7	n	2	2	2	2	2	2	2	2	2	2
	Min	<0.001	0.009	<0.001	<0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001
	Median	<0.001	0.01	<0.001	<0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001
	Max	<0.001	0.011	<0.001	<0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001
	Above Guideline	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-
DCA1	n	2	2	2	2	2	2	2	2	2	2
	Min	<0.001	0.006	<0.001	<0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001
	Median	<0.001	0.008	<0.001	<0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001
	Max	<0.001	0.01	<0.001	<0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001
	Above Guideline	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-
DCO1	n	2	2	2	2	2	2	2	2	2	2
	Min	<0.001	0.019	<0.001	<0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001
	Median	<0.001	0.0255	<0.001	<0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001
	Max	<0.001	0.032	<0.001	<0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001
	Above Guideline	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-
DNE2 / DNE1	n	2	2	2	2	2	2	2	2	2	2
	Min	<0.001	0.01	<0.001	<0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001
	Median	<0.001	0.0105	<0.001	<0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001
	Max	<0.001	0.011	<0.001	<0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001
	Above Guideline	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-

Table A16 Upper Nepean system – water filtration plants – part 1

		Physicochemical													Metals						Indicator bacteria			
Station Code	Statistic	Total Alkalinity as CaCO3 (mg/L)	Conductivity @25 C - Field (mS/cm)	Dissolved Organic Carbon (mg/L)	Dissolved Oxygen - Field (%Sat)	Dissolved Oxygen - Field (mg/L)	pH - Field	Temperature - Field (Deg C)	Total Hardness as CaCO3 (mg/L)	Total Organic Carbon (mg/L)	True Colour at 400nm (PES filter)	True Colour at 420nm (PES filter)	Turbidity - Field (NTU)	UV Absorbance @ 254nm	Aluminium Filtered (mg/L)	Aluminium Total (mg/L)	Iron Filtered (mg/L)	Iron Total (mg/L)	Manganese Filtered (mg/L)	Manganese Total (mg/L)	Clostridium perfringens (cfu/100 mL) or (spores/100mL)	Coliforms Total (cfu/100mL)	E. coli (orgs/100mL) or (CFU/100mL)	Enterococci (cfu/100ml)
HMAC1	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	2	0.067	3.3	95.4	8.16	5.78	10.2	7.4	3.5	14	31	0.54	0.126	<0.01	0.04	0.16	0.32	0.007	0.012	<1	200	<1	<1
	Median	5.5	0.075	4.3	98.45	9.625	6.93	16.65	9.7	4.3	18.5	41.5	0.905	0.1555	0.06	0.08	0.26	0.47	0.0105	0.0195	<1	1700	5	14
	Max	7	0.084	5.5	100.9	11.3	7.04	23.5	10.7	5.6	25	59	3.26	0.219	0.19	0.33	0.38	0.7	0.018	0.028	3	4400	75	100
	Above Guideline	0	-	-	-	-	-	-	0	-	0	-	0	-	-	0	-	0	-	0	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HNED	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	7	0.065	3.8	63.5	5.59	6.14	10.98	9.2	3.8	16	36	1.03	0.151	0.04	0.08	0.21	0.43	0.009	0.015	<1	5	<1	<1
	Median	8	0.0705	4.5	82.7	8.225	6.525	17.365	10.5	4.5	20.5	46	2.995	0.182	0.13	0.175	0.295	0.48	0.017	0.036	<1	295	<1	<1
	Max	10	0.078	5.9	92.8	9.6	6.86	22.2	12.6	5.7	25	55	8.43	0.266	0.24	0.37	0.33	0.72	0.086	0.111	9	2800	7	3
	Above Guideline	0	-	-	-	-	-	-	0	-	0	-	0	-	-	0	-	0	-	0	-	-	-	-
	Below Guideline	0	-	-	-	-	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
IWFP-R	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	2	0.05	2.9	91.9	8.11	6.07	11.9	3.5	3	5	11	0.19	0.067	<0.01	0.02	0.04	0.11	0.002	0.004	<1	50	<1	<1
	Median	3	0.0525	3.15	99.3	9.505	6.765	17.5	5.5	3.2	6	13.5	0.6	0.08	0.02	0.03	0.06	0.15	0.0035	0.013	<1	180	<1	<1
	Max	4	0.061	3.6	101.1	10.77	7.14	21.5	6.8	3.6	9	19	2.37	0.101	0.04	0.06	0.13	0.23	0.018	0.032	1	4300	5	6
	Above Guideline	0	-	-	-	-	-	-	0	-	0	-	0	-	-	0	-	0	-	0	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table A17 Upper Nepean system – water filtration plants – part 2

		Cyanobacteria									Health related physical chemical										
Station Code	Statistic	Algal Count - Total (cells/mL)	Algal Biovolume - Total (mm3/L)	Algal ASU - Total (ASU/mL)	Algal Count - Cyanobacteria (cells/mL)	Algal Biovolume - Cyanobacteria (mm3/L)	Algal ASU - Cyanobacteria (ASU/mL)	Algal Count - Toxic Cyanobacteria (cells/mL)	Algal Biovolume - Toxic Cyanobacteria (mm3/L)	Microcystin LR+RR+YR (ug/L)	Arsenic Total (mg/L)	Barium Total (mg/L)	Beryllium Total (mg/L)	Boron Total (mg/L)	Iodide (mg/L)	Mercury Total (mg/L)	Molybdenum Total (mg/L)	Selenium Total (mg/L)	Silver Total (mg/L)	Tin Total (mg/L)	Uranium Total (mg/L)
HMAC1	n	12	12	12	12	12	12	12	12	0	4	1	1	1	1	4	1	4	1	1	1
	Min	136	0.036	28.5	0	0	0	0	0	-	<0.001	0.01	<0.001	<0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001	<0.001
	Median	1300	0.137	87.3	76.5	0	0.885	0	0	-	<0.001	0.01	<0.001	<0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001	<0.001
	Max	4520	0.338	191.4	2650	0.005	13.8	0	0	-	<0.001	0.01	<0.001	<0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001	<0.001
	Above Guideline	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HNED	n	12	12	12	12	12	12	12	12	0	4	1	1	1	1	4	1	4	1	1	1
	Min	204	0.104	65.1	0	0	0	0	0	-	<0.001	0.01	<0.001	0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001	<0.001
	Median	1215	0.557	258.9	306	0	0.545	0	0	-	<0.001	0.01	<0.001	0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001	<0.001
	Max	4910	1.77	829	2930	0.005	10.6	204	0.005	-	<0.001	0.01	<0.001	0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001	<0.001
	Above Guideline	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
IWFP-R	n	12	12	12	12	12	12	12	12	0	4	1	1	1	1	4	1	4	1	1	1
	Min	561	0.105	81.3	0	0	0	0	0	-	<0.001	0.008	<0.001	<0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001	<0.001
	Median	2235	0.5045	321.75	0	0	0	0	0	-	<0.001	0.008	<0.001	<0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001	<0.001
	Max	5720	6.13	1110	2050	0.004	10.8	0	0	-	<0.001	0.008	<0.001	<0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001	<0.001
	Above Guideline	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table A18 Upper Nepean system – water filtration plants – part 3

		Pesticides												Synthetic organic compounds & radionuclides			
Station Code	Statistic	2,4-D (ug/L)	Atrazine (ug/L)	Chlorfenvinphos (E+Z) (ug/L)	Chlorpyrifos (ug/L)	Diuron (ug/L)	Fluropanate (ug/L)	Glyphosate (ug/L)	Hexazinone (ug/L)	MCPA (ug/L)	Picloram (ug/L)	Simazine (ug/L)	Triclopyr (ug/L)	Benzene (ug/L)	Gross Alpha (Bq/L)	Gross Beta minus Potassium 40 (Bq/L)	Vinyl chloride (ug/L)
HMAC1	n	4	4	4	4	4	4	4	4	4	4	4	4	4	1	1	4
	Min	<0.01	<0.01	<0.02	<0.02	<0.02	<0.1	<10	<0.02	<0.01	<0.05	<0.02	<0.01	<0.10	<0.05	<0.10	<0.050
	Median	<0.01	<0.01	<0.02	<0.02	<0.02	<0.1	<10	<0.02	<0.01	<0.05	<0.02	<0.01	<0.10	<0.05	<0.10	<0.050
	Max	<0.01	<0.01	<0.02	<0.02	<0.02	<0.1	<10	<0.02	<0.01	<0.05	<0.02	<0.01	<0.10	<0.05	<0.10	<0.050
	Above Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HNED	n	4	4	4	4	4	4	4	4	4	4	4	4	4	1	1	4
	Min	<0.01	<0.01	<0.02	<0.02	<0.02	<0.1	<10	<0.02	<0.01	<0.05	<0.02	<0.01	<0.10	<0.05	<0.10	<0.050
	Median	<0.01	<0.01	<0.02	<0.02	<0.02	<0.1	<10	<0.02	<0.01	<0.05	<0.02	<0.01	<0.10	<0.05	<0.10	<0.050
	Max	<0.01	<0.01	<0.02	<0.02	<0.02	<0.1	<10	<0.02	<0.01	<0.05	<0.02	<0.01	<0.10	<0.05	<0.10	<0.050
	Above Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
IWFP-R	n	4	4	4	4	4	4	4	4	4	4	4	4	4	1	1	4
	Min	<0.01	<0.01	<0.02	<0.02	<0.02	<0.1	<10	<0.02	<0.01	<0.05	<0.02	<0.01	<0.10	<0.05	<0.10	<0.050
	Median	<0.01	<0.01	<0.02	<0.02	<0.02	<0.1	<10	<0.02	<0.01	<0.05	<0.02	<0.01	<0.10	<0.05	<0.10	<0.050
	Max	<0.01	<0.01	<0.02	<0.02	<0.02	<0.1	<10	<0.02	<0.01	<0.05	<0.02	<0.01	<0.10	<0.05	<0.10	<0.050
	Above Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

3. Woronora system

Table A19 Woronora system – catchments – part 1

		Physicochemical															Nutrients						
Site Code	Statistic	Total Alkalinity as CaCO3 (mg/L)	Conductivity @25 C - Field (mS/cm)	Dissolved Organic Carbon (mg/L)	Dissolved Oxygen - Field (%Sat)	Dissolved Oxygen - Field (mg/L)	pH - Field	Sulphate (mg/L)	Suspended Solids (mg/L)	Temperature - Field (Deg C)	Total Hardness as CaCO3 (mg/L)	Total Organic Carbon (mg/L)	True Colour at 400nm (PES filter)	True Colour at 420nm (PES filter)	Turbidity - Field (NTU)	UV Absorbance @ 254nm	Nitrogen Ammoniacal (mg/L)	Nitrogen Oxidised (mg/L)	Nitrogen TKN (mg/L)	Nitrogen Total (mg/L)	Phosphorus Soluble Reactive (mg/L)	Phosphorus Total (mg/L)	Reactive Silica (mg/L)
E6131	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	13	0.14	1.4	86	7.43	7.02	2	<1	8.8	21.4	1.7	5	10	2.21	0.08	<0.005	<0.002	<0.01	<0.01	<0.001	<0.005	4.47
	Median	20.5	0.1615	2.15	91.9	8.755	7.11	5	<1	17.9	29.6	2.15	10.5	22	3.175	0.119	0.008	0.008	0.015	0.02	0.003	0.007	4.645
	Max	30	0.181	2.8	95.2	10.95	7.3	6	3	24.1	41	3	13	30	4.76	0.153	0.015	0.024	0.09	0.1	0.005	0.012	5.38
	Above Guideline	-	0	-	0	-	0	-	-	-	-	-	-	-	0	-	1	3	-	0	0	0	-
	Below Guideline	-	-	-	3	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E677	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	<1	0.128	1.6	82.5	7.2	5.12	1	<1	8.1	11	1.7	1	3	0.18	0.038	<0.005	<0.002	0.03	0.04	<0.001	<0.005	4.53
	Median	<1	0.16	2.35	86.3	8.485	5.34	3	<1	16.15	14.45	2.35	3	6	0.84	0.0755	0.0065	0.0055	0.07	0.075	0.0015	0.0085	5.07
	Max	3	0.178	3.5	95.8	11.31	5.64	7	3	22.4	17.9	3.7	6	14	2.72	0.122	0.012	0.021	0.12	0.13	0.004	0.016	5.55
	Above Guideline	-	0	-	0	-	0	-	-	-	-	-	-	-	0	-	0	1	-	0	0	0	-
	Below Guideline	-	-	-	9	-	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table A20 Woronora system – catchments – part 2

		Metals										Cyanobacteria									Indicator Bacteria		
Site Code	Statistic	Aluminium Filtered (mg/L)	Aluminium Total (mg/L)	Calcium Filtered (mg/L)	Iron Filtered (mg/L)	Iron Total (mg/L)	Magnesium Filtered (mg/L)	Manganese Filtered (mg/L)	Manganese Total (mg/L)	Potassium Filtered (mg/L)	Sodium Filtered (mg/L)	Chlorophyll-a (ug/L)	Algal Count - Total (cells/mL)	Algal Biovolume - Total (mm3/L)	Algal ASU - Total (ASU/mL)	Algal Count - Cyanobacteria (cells/mL)	Algal Biovolume - Cyanobacteria (mm3/L)	Algal ASU - Cyanobacteria (ASU/mL)	Algal Count - Toxic Cyanobacteria (cells/mL)	Algal Biovolume - Toxic Cyanobacteria (mm3/L)	Clostridium perfringens (cfu/100 mL) or (spores/100mL)	E. coli (orgs/100mL) or (CFU/100mL)	Enterococci (cfu/100ml)
E6131	n	12	12	12	12	12	12	12	12	12	12	12	0	0	0	0	0	0	0	0	12	12	12
	Min	<0.01	<0.01	4.3	0.2	0.66	2.6	0.036	0.036	0.7	15.8	<0.20	-	-	-	-	-	-	-	-	<1	<1	<1
	Median	0.015	0.03	6.8	0.325	0.835	3.2	0.06	0.07	1.1	18.8	0.26	-	-	-	-	-	-	-	-	<1	9.5	4
	Max	0.04	0.15	9	0.53	1	3.8	0.104	0.118	1.4	22	0.4	-	-	-	-	-	-	-	-	1	53	29
	Above Guideline	-	2	-	-	-	-	-	0	-	-	0	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E677	n	12	12	12	12	12	12	12	12	12	12	12	0	0	0	0	0	0	0	0	12	12	12
	Min	0.03	0.06	0.6	0.04	0.14	2.3	0.043	0.046	0.8	18	<0.20	-	-	-	-	-	-	-	-	<1	<1	<1
	Median	0.055	0.08	1.05	0.07	0.28	2.85	0.062	0.0675	1	22.85	0.26	-	-	-	-	-	-	-	-	<1	4	1
	Max	0.13	0.17	1.5	0.51	0.77	3.5	0.091	0.088	1.3	26.3	1.57	-	-	-	-	-	-	-	-	2	76	76
	Above Guideline	-	12	-	-	-	-	-	0	-	-	0	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table A21 Woronora system – storage – part 1

		Physicochemical															Nutrients						
Station Code	Statistic	Total Alkalinity as CaCO3 (mg/L)	Conductivity @25 C - Field (mS/cm)	Dissolved Organic Carbon (mg/L)	Dissolved Oxygen - Field (%Sat)	Dissolved Oxygen - Field (mg/L)	pH - Field	Sulphate (mg/L)	Suspended Solids (mg/L)	Temperature - Field (Deg C)	Total Hardness as CaCO3 (mg/L)	Total Organic Carbon (mg/L)	True Colour at 400nm (PES filter)	True Colour at 420nm (PES filter)	Turbidity - Field (NTU)	UV Absorbance @ 254nm	Nitrogen Ammoniacal (mg/L)	Nitrogen Oxidised (mg/L)	Nitrogen TKN (mg/L)	Nitrogen Total (mg/L)	Phosphorus Soluble Reactive (mg/L)	Phosphorus Total (mg/L)	Reactive Silica (mg/L)
DWO_THMD	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	2	0.071	4.1	84	7.89	5.74	2	<1	13.35	6.6	4.1	15	33	1.31	0.159	<0.005	0.072	0.07	0.16	<0.001	<0.005	2.4
	Median	3	0.0785	4.75	95.9	8.445	6.435	3	<1	20.155	7.5	4.8	21	46.5	2.135	0.196	0.0125	0.0935	0.135	0.225	0.001	0.006	2.845
	Max	3	0.082	6	102.2	9.72	6.77	4	2	24.86	9.5	5.7	26	57	3.48	0.244	0.024	0.109	0.18	0.28	0.003	0.008	3.08
	Above Guideline	-	-	-	0	-	0	-	-	-	-	-	-	-	0	-	9	12	-	0	0	0	-
	Below Guideline	-	-	-	3	-	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DWO1	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	2	0.071	4.1	82.9	7.66	5.77	2	<1	13.58	6.6	4.1	16	35	1.25	0.162	<0.005	0.076	0.08	0.17	<0.001	<0.005	2.45
	Median	3	0.0775	4.9	96.5	8.39	6.375	3	<1	20.3	7.8	4.9	22	47	2.045	0.1985	0.013	0.0955	0.14	0.24	0.002	<0.005	2.775
	Max	4	0.082	6.1	102.3	9.65	6.86	4	2	25.18	9.5	5.7	27	58	3.65	0.249	0.029	0.106	0.19	0.29	0.004	0.007	3.06
	Above Guideline	-	-	-	0	-	0	-	-	-	-	-	-	-	0	-	8	12	-	0	0	0	-
	Below Guideline	-	-	-	4	-	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table A22 Woronora system – storage – part 2

		Metals										Cyanobacteria												Indicator bacteria		
Station Code	Statistic	Aluminium Filtered (mg/L)	Aluminium Total (mg/L)	Calcium Filtered (mg/L)	Iron Filtered (mg/L)	Iron Total (mg/L)	Magnesium Filtered (mg/L)	Manganese Filtered (mg/L)	Manganese Total (mg/L)	Potassium Filtered (mg/L)	Sodium Filtered (mg/L)	Chlorophyll-a (ug/L)	Algal Count - Total (cells/mL)	Algal Biovolume - Total (mm3/L)	Algal ASU - Total (ASU/mL)	Algal Count - Cyanobacteria (cells/mL)	Algal Biovolume - Cyanobacteria (mm3/L)	Algal ASU - Cyanobacteria (ASU/mL)	Algal Count - Toxic Cyanobacteria (cells/mL)	Algal Biovolume - Toxic Cyanobacteria (mm3/L)	Microcystin LR+RR+YR (ug/L)	2-Methylisoborneol (MIB) (ng/L)	Geosmin (ng/L)	Clostridium perfringens (cfu/100 mL) or (spores/100mL)	E. coli (orgs/100mL) or (CFU/100mL)	Enterococci (cfu/100ml)
DWO_THMD	n	12	12	12	12	12	12	12	12	12	12	12	1	1	1	1	1	1	1	1	0	0	0	12	12	12
	Min	0.09	0.12	0.9	0.18	0.32	1	0.007	0.014	0.9	10.1	0.2	1570	0.643	266.2	0	0	0	0	0	-	-	-	<1	<1	<1
	Median	0.135	0.23	1.1	0.25	0.525	1.15	0.013	0.018	1	11.2	1.07	1570	0.643	266.2	0	0	0	0	0	-	-	-	<1	1	<1
	Max	0.2	0.31	1.5	0.34	0.59	1.4	0.018	0.025	1.1	12	5.5	1570	0.643	266.2	0	0	0	0	0	-	-	-	1	9	2
	Above Guideline	-	12	-	-	-	-	-	0	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DWO1	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	0	12	12	12	12	12
	Min	0.08	0.09	1	0.16	0.24	1	0.006	0.015	0.8	10.3	<0.2	0	0	0	0	0	0	0	0	-	<1	<1	<1	<1	<1
	Median	0.15	0.225	1.1	0.26	0.46	1.2	0.0135	0.0175	1	11.3	0.96	1075	0.249	127.25	0	0	0	0	0	-	<1	<1	<1	<1	<1
	Max	0.21	0.32	1.5	0.4	0.64	1.4	0.017	0.024	1.2	12	4.9	5320	1.24	341.9	2450	0.001	7.84	68	0.001	-	<1	1	2	22	13
	Above Guideline	-	12	-	-	-	-	-	0	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table A23 Woronora system – storage – part 3

		Health related physical chemical									
Site Code	Statistic	Arsenic Total (mg/L)	Barium Total (mg/L)	Beryllium Total (mg/L)	Boron Total (mg/L)	Iodide (mg/L)	Mercury Total (mg/L)	Molybdenum Total (mg/L)	Selenium Total (mg/L)	Silver Total (mg/L)	Tin Total (mg/L)
DWO1	n	2	2	2	2	2	2	2	2	2	2
	Min	<0.001	0.011	<0.001	<0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001
	Median	<0.001	0.0115	<0.001	<0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001
	Max	<0.001	0.012	<0.001	<0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001
	Above Guideline	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-

Table A24 Woronora system – water filtration plant – part 1

		Physicochemical													Metals						Indicator bacteria			
Station Code	Statistic	Total Alkalinity as CaCO3 (mg/L)	Conductivity @25 C - Field (mS/cm)	Dissolved Organic Carbon (mg/L)	Dissolved Oxygen - Field (%Sat)	Dissolved Oxygen - Field (mg/L)	pH - Field	Temperature - Field (Deg C)	Total Hardness as CaCO3 (mg/L)	Total Organic Carbon (mg/L)	True Colour at 400nm (PES filter)	True Colour at 420nm (PES filter)	Turbidity - Field (NTU)	UV Absorbance @ 254nm	Aluminium Filtered (mg/L)	Aluminium Total (mg/L)	Iron Filtered (mg/L)	Iron Total (mg/L)	Manganese Filtered (mg/L)	Manganese Total (mg/L)	Clostridium perfringens (cfu/100 mL) or (spores/100mL)	Coliforms Total (cfu/100mL)	E. coli (orgs/100mL) or (CFU/100mL)	Enterococci (cfu/100ml)
HWO1-A	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	2	0.072	4.2	82.8	7.56	5.55	13.23	7	4.2	16	38	1.48	0.164	0.07	0.15	0.1	0.42	0.006	0.016	<1	20	<1	<1
	Median	3	0.0775	5	91.4	8.48	6.305	18.55	8.05	5.2	22	48.5	2.36	0.2055	0.165	0.26	0.25	0.53	0.012	0.0205	<1	59	<1	<1
	Max	4	0.086	5.8	95.5	9.21	6.68	23.4	9.5	5.6	26	56	3.94	0.252	0.24	0.4	0.41	0.65	0.018	0.024	1	210	20	5
	Above Guideline	0	-	-	-	-	-	-	0	-	0	-	0	-	-	0	-	0	-	0	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table A25 Woronora system – water filtration plant – part 2

		Cyanobacteria									Health related physical chemical										
Station Code	Statistic	Algal Count - Total (cells/mL)	Algal Biovolume - Total (mm3/L)	Algal ASU - Total (ASU/mL)	Algal Count - Cyanobacteria (cells/mL)	Algal Biovolume - Cyanobacteria (mm3/L)	Algal ASU - Cyanobacteria (ASU/mL)	Algal Count - Toxic Cyanobacteria (cells/mL)	Algal Biovolume - Toxic Cyanobacteria (mm3/L)	Microcystin LR+RR+YR (ug/L)	Arsenic Total (mg/L)	Barium Total (mg/L)	Beryllium Total (mg/L)	Boron Total (mg/L)	Iodide (mg/L)	Mercury Total (mg/L)	Molybdenum Total (mg/L)	Selenium Total (mg/L)	Silver Total (mg/L)	Tin Total (mg/L)	Uranium Total (mg/L)
HWO1-A	n	12	12	12	12	12	12	12	12	0	4	1	1	1	1	4	1	4	1	1	1
	Min	136	0.032	18.8	0	0	0	0	0	-	<0.001	0.011	<0.001	<0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001	<0.001
	Median	828	0.1535	69.95	0	0	0	0	0	-	<0.001	0.011	<0.001	<0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001	<0.001
	Max	1820	0.259	124.5	817	0.001	3.47	68	0.001	-	<0.001	0.011	<0.001	<0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001	<0.001
	Above Guideline	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table A26 Woronora system – water filtration plant – part 3

		Pesticides												Synthetic organic compounds & radionuclides			
Station Code	Statistic	2,4-D (ug/L)	Atrazine (ug/L)	Chlorfenvinphos (E+Z) (ug/L)	Chlorpyrifos (ug/L)	Diuron (ug/L)	Fluropanate (ug/L)	Glyphosate (ug/L)	Hexazinone (ug/L)	MCPA (ug/L)	Picloram (ug/L)	Simazine (ug/L)	Triclopyr (ug/L)	Benzene (ug/L)	Gross Alpha (Bq/L)	Gross Beta minus Potassium 40 (Bq/L)	Vinyl chloride (ug/L)
HWO1-A	n	4	4	4	4	4	4	4	4	4	4	4	4	4	1	1	4
	Min	<0.01	<0.01	<0.02	<0.02	<0.02	<0.1	<10	<0.02	<0.01	<0.05	<0.02	<0.01	<0.10	<0.05	<0.10	<0.050
	Median	<0.01	<0.01	<0.02	<0.02	<0.02	<0.1	<10	<0.02	<0.01	<0.05	<0.02	<0.01	<0.10	<0.05	<0.10	<0.050
	Max	<0.01	<0.01	<0.02	<0.02	<0.02	<0.1	<10	<0.02	<0.01	<0.05	<0.02	<0.01	<0.10	<0.05	<0.10	<0.050
	Above Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

4. Blue Mountains System

Table A27 Blue Mountains system – storages – part 1

		Physicochemical															Nutrients						
Station Code	Statistic	Total Alkalinity as CaCO3 (mg/L)	Conductivity @25 C - Field (mS/cm)	Dissolved Organic Carbon (mg/L)	Dissolved Oxygen - Field (%Sat)	Dissolved Oxygen - Field (mg/L)	pH - Field	Sulphate (mg/L)	Suspended Solids (mg/L)	Temperature - Field (Deg C)	Total Hardness as CaCO3 (mg/L)	Total Organic Carbon (mg/L)	True Colour at 400nm (PES filter)	True Colour at 420nm (PES filter)	Turbidity - Field (NTU)	UV Absorbance @ 254nm	Nitrogen Ammoniacal (mg/L)	Nitrogen Oxidised (mg/L)	Nitrogen TKN (mg/L)	Nitrogen Total (mg/L)	Phosphorus Soluble Reactive (mg/L)	Phosphorus Total (mg/L)	Reactive Silica (mg/L)
DGC1	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	<1	0.026	2.6	76.1	6.69	4.66	<1	<1	7.92	1.3	2.6	13	28	0.83	0.117	0.013	0.038	0.05	0.13	<0.001	<0.005	3.71
	Median	<1	0.0305	3.5	83.65	8.17	5.5	<1	<1	15.925	2.4	3.65	18.5	42.5	1.195	0.1775	0.02	0.05	0.145	0.195	0.002	0.008	4.48
	Max	2	0.036	5.3	96.4	10.34	5.87	1	2	21.71	3.3	5.9	25	57	4.08	0.28	0.06	0.076	0.21	0.26	0.005	0.017	5.03
	Above Guideline	-	-	-	0	-	0	-	-	-	-	-	-	-	0	-	12	12	-	0	0	3	-
	Below Guideline	-	-	-	8	-	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DLC1	n	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
	Min	12	0.054	2.1	79.6	6.96	6.37	<1	<1	9.27	13.2	2.2	7	14	0.05	0.072	<0.005	0.01	0.11	0.15	0.001	<0.005	3.71
	Median	13	0.057	2.7	87.8	8.35	7.01	<1	<1	17.84	16.55	2.85	8	18	0.82	0.0815	<0.005	0.0415	0.155	0.195	0.002	0.0065	4.21
	Max	18	0.071	3.1	98	9.65	7.14	1	1	22.01	18.4	3	9	21	1.5	0.096	0.032	0.056	0.21	0.25	0.002	0.008	4.89
	Above Guideline	-	-	-	0	-	0	-	-	-	-	-	-	-	0	-	2	5	-	0	0	0	-
	Below Guideline	-	-	-	4	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DTC1	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	5	0.04	3.3	79	7.25	6.14	<1	<1	8.03	7.4	3.3	6	13	0.17	0.092	<0.005	0.002	0.17	0.18	<0.001	<0.005	2.12
	Median	10.5	0.05	3.8	87.6	8.52	6.98	<1	1	16.86	11.7	3.85	8	18	0.94	0.1025	<0.005	0.016	0.24	0.26	0.002	0.006	3.265
	Max	15	0.061	4.2	99.2	10.22	7.18	1	6	21.92	16	4.3	12	26	1.53	0.122	0.054	0.04	0.33	0.37	0.005	0.018	4.59
	Above Guideline	-	-	-	0	-	0	-	-	-	-	-	-	-	0	-	3	9	-	1	0	2	-
	Below Guideline	-	-	-	8	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table A28 Blue Mountains system – storages – part 2

		Metals										Cyanobacteria												Indicator bacteria		
Station Code	Statistic	Aluminium Filtered (mg/L)	Aluminium Total (mg/L)	Calcium Filtered (mg/L)	Iron Filtered (mg/L)	Iron Total (mg/L)	Magnesium Filtered (mg/L)	Manganese Filtered (mg/L)	Manganese Total (mg/L)	Potassium Filtered (mg/L)	Sodium Filtered (mg/L)	Chlorophyll-a (ug/L)	Algal Count - Total (cells/mL)	Algal Biovolume - Total (mm3/L)	Algal ASU - Total (ASU/mL)	Algal Count - Cyanobacteria (cells/mL)	Algal Biovolume - Cyanobacteria (mm3/L)	Algal ASU - Cyanobacteria (ASU/mL)	Algal Count - Toxic Cyanobacteria (cells/mL)	Algal Biovolume - Toxic Cyanobacteria (mm3/L)	Microcystin LR+RR+YR (ug/L)	2-Methylisoborneol (MIB) (ng/L)	Geosmin (ng/L)	Clostridium perfringens (cfu/100 mL) or (spores/100mL)	E. coli (orgs/100mL) or (CFU/100mL)	Enterococci (cfu/100ml)
DGC1	n	12	12	12	12	12	12	12	12	12	12	19	1	1	1	1	1	1	1	1	0	0	0	12	12	12
	Min	0.07	0.11	0.2	0.11	0.32	0.2	0.01	0.011	0.3	3.8	<0.20	357	0.068	31.6	0	0	0	0	0	-	-	-	<1	<1	<1
	Median	0.1	0.15	0.3	0.235	0.56	0.4	0.014	0.015	0.5	4.7	1.34	357	0.068	31.6	0	0	0	0	0	-	-	-	1	3	1.5
	Max	0.18	0.26	0.5	0.48	0.74	0.5	0.02	0.021	0.8	5.6	2.9	357	0.068	31.6	0	0	0	0	0	-	-	-	17	20	21
	Above Guideline	-	12	-	-	-	-	-	0	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DLC1	n	6	6	6	6	6	6	6	6	6	6	5	0	0	0	0	0	0	0	0	0	0	0	6	6	6
	Min	<0.01	<0.01	4.3	0.07	0.15	0.6	0.002	0.019	0.6	4.1	1.74	-	-	-	-	-	-	-	-	-	-	-	<1	2	<1
	Median	<0.01	0.02	5.15	0.1	0.24	0.8	0.037	0.045	0.7	4.45	2	-	-	-	-	-	-	-	-	-	-	-	2.5	3.5	3.5
	Max	0.04	0.04	5.7	0.22	0.3	1.2	0.047	0.089	1	4.7	2.2	-	-	-	-	-	-	-	-	-	-	-	5	27	27
	Above Guideline	-	0	-	-	-	-	-	0	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DTC1	n	12	12	12	12	12	12	12	12	12	12	38	39	39	39	39	39	39	39	39	0	39	39	12	12	12
	Min	<0.01	<0.01	1.8	0.03	0.12	0.7	<0.001	0.005	0.5	4.2	1.57	1180	0.15	153.7	0	0	0	0	0	-	<1	<1	<1	<1	<1
	Median	0.02	0.035	2.8	0.085	0.185	1.1	0.0025	0.0085	0.95	4.45	3.95	4640	1.1	536.7	885	0.001	5.22	0	0	-	<1	3	1	3.5	2
	Max	0.07	0.08	3.6	0.22	0.29	1.7	0.008	0.03	1.4	5	10.65	29740	4.31	2146	27830	0.022	89.9	136	0.003	-	<1	6	5	16	24
	Above Guideline	-	3	-	-	-	-	-	0	-	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table A29 Blue Mountains system – storages – part 3

		Health related physical chemical									
Site Code	Statistic	Arsenic Total (mg/L)	Barium Total (mg/L)	Beryllium Total (mg/L)	Boron Total (mg/L)	Iodide (mg/L)	Mercury Total (mg/L)	Molybdenum Total (mg/L)	Selenium Total (mg/L)	Silver Total (mg/L)	Tin Total (mg/L)
DTC1	n	2	2	2	2	2	2	2	2	2	2
	Min	<0.001	0.006	<0.001	<0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001
	Median	<0.001	0.0065	<0.001	<0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001
	Max	<0.001	0.007	<0.001	<0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001
	Above Guideline	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-

Table A30 Blue Mountains system – water filtration plant – part 1

		Physicochemical													Metals						Indicator bacteria			
Station Code	Statistic	Total Alkalinity as CaCO3 (mg/L)	Conductivity @25 C - Field (mS/cm)	Dissolved Organic Carbon (mg/L)	Dissolved Oxygen - Field (%Sat)	Dissolved Oxygen - Field (mg/L)	pH - Field	Temperature - Field (Deg C)	Total Hardness as CaCO3 (mg/L)	Total Organic Carbon (mg/L)	True Colour at 400nm (PES filter)	True Colour at 420nm (PES filter)	Turbidity - Field (NTU)	UV Absorbance @ 254nm	Aluminium Filtered (mg/L)	Aluminium Total (mg/L)	Iron Filtered (mg/L)	Iron Total (mg/L)	Manganese Filtered (mg/L)	Manganese Total (mg/L)	Clostridium perfringens (cfu/100 mL) or (spores/100mL)	Coliforms Total (cfu/100mL)	E. coli (orgs/100mL) or (CFU/100mL)	Enterococci (cfu/100ml)
HCSR	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	5	0.04	3.3	75.5	6.38	6.09	7.18	7.4	3.3	6	13	0.91	0.091	<0.01	<0.01	0.03	0.1	<0.001	0.002	<1	12	<1	<1
	Median	10.5	0.053	3.8	88.35	8.155	7	15.72	10.8	3.95	8.5	18	1.325	0.1035	0.02	0.025	0.09	0.19	0.002	0.012	<1	1200	1	1.5
	Max	15	0.061	4.9	99.6	10.2	7.2	22.59	15.7	4.9	12	27	2.1	0.123	0.05	0.08	0.17	0.33	0.006	0.03	3	8200	7	16
	Above Guideline	0	-	-	-	-	-	-	0	-	0	-	0	-	-	0	-	0	-	0	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table A31 Blue Mountains system – water filtration plant – part 2

		Cyanobacteria									Health related physical chemical										
Station Code	Statistic	Algal Count - Total (cells/mL)	Algal Biovolume - Total (mm3/L)	Algal ASU - Total (ASU/mL)	Algal Count - Cyanobacteria (cells/mL)	Algal Biovolume - Cyanobacteria (mm3/L)	Algal ASU - Cyanobacteria (ASU/mL)	Algal Count - Toxic Cyanobacteria (cells/mL)	Algal Biovolume - Toxic Cyanobacteria (mm3/L)	Microcystin LR+RR+YR (ug/L)	Arsenic Total (mg/L)	Barium Total (mg/L)	Beryllium Total (mg/L)	Boron Total (mg/L)	Iodide (mg/L)	Mercury Total (mg/L)	Molybdenum Total (mg/L)	Selenium Total (mg/L)	Silver Total (mg/L)	Tin Total (mg/L)	Uranium Total (mg/L)
HCSR	n	12	12	12	12	12	12	12	12	0	4	1	1	1	1	4	1	4	1	1	1
	Min	1620	0.141	161.9	0	0	0	0	0	-	<0.001	0.006	<0.001	<0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001	<0.001
	Median	5525	1.0185	479.15	884.5	0.001	5.37	0	0	-	<0.001	0.006	<0.001	<0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001	<0.001
	Max	12250	7.27	2901	10880	0.011	34.8	0	0	-	<0.001	0.006	<0.001	<0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001	<0.001
	Above Guideline	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table A32 Blue Mountains system – water filtration plant – part 3

		Pesticides												Synthetic organic compounds & radionuclides			
Station Code	Statistic	2,4-D (ug/L)	Atrazine (ug/L)	Chlorfenvinphos (E+Z) (ug/L)	Chlorpyrifos (ug/L)	Diuron (ug/L)	Fluropanate (ug/L)	Glyphosate (ug/L)	Hexazinone (ug/L)	MCPA (ug/L)	Picloram (ug/L)	Simazine (ug/L)	Triclopyr (ug/L)	Benzene (ug/L)	Gross Alpha (Bq/L)	Gross Beta minus Potassium 40 (Bq/L)	Vinyl chloride (ug/L)
HCSR	n	4	4	4	4	4	4	4	4	4	4	4	4	4	1	1	4
	Min	<0.01	<0.01	<0.02	<0.02	<0.02	<0.1	<10	<0.02	<0.01	<0.05	<0.02	<0.01	<0.10	<0.05	<0.10	<0.050
	Median	<0.01	<0.01	<0.02	<0.02	<0.02	<0.1	<10	<0.02	<0.01	<0.05	<0.02	<0.01	<0.10	<0.05	<0.10	<0.050
	Max	<0.01	<0.01	<0.02	<0.02	<0.02	<0.1	<10	<0.02	<0.01	<0.05	<0.02	<0.01	<0.10	<0.05	<0.10	<0.050
	Above Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

5. Shoalhaven system

Table A33 Shoalhaven system – catchments – part 1

		Physicochemical															Nutrients						
Site Code	Statistic	Total Alkalinity as CaCO3 (mg/L)	Conductivity @25 C - Field (mS/cm)	Dissolved Organic Carbon (mg/L)	Dissolved Oxygen - Field (%Sat)	Dissolved Oxygen - Field (mg/L)	pH - Field	Sulphate (mg/L)	Suspended Solids (mg/L)	Temperature - Field (Deg C)	Total Hardness as CaCO3 (mg/L)	Total Organic Carbon (mg/L)	True Colour at 400nm (PES filter)	True Colour at 420nm (PES filter)	Turbidity - Field (NTU)	UV Absorbance @ 254nm	Nitrogen Ammoniacal (mg/L)	Nitrogen Oxidised (mg/L)	Nitrogen TKN (mg/L)	Nitrogen Total (mg/L)	Phosphorus Soluble Reactive (mg/L)	Phosphorus Total (mg/L)	Reactive Silica (mg/L)
E300	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	10	0.073	0.6	52.7	5.28	6.4	<1	<1	8.454	14.9	0.6	3	7	2.54	0.052	0.016	0.692	<0.05	0.84	0.001	0.012	4.54
	Median	11.5	0.082	1.45	79.1	7.68	6.655	<1	3	14.005	17.5	1.55	6	12	3.75	0.083	0.028	1.405	0.21	1.67	0.003	0.0195	5.39
	Max	18	0.092	2.2	89.4	10.26	7.08	1	5	20.728	20.6	2.4	10	23	5.13	0.13	0.068	2.56	0.32	2.54	0.006	0.029	6.65
	Above Guideline	-	0	-	0	-	0	-	-	-	-	-	-	-	0	-	12	12	-	12	0	6	-
	Below Guideline	-	-	-	12	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E301	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	11	0.072	0.8	79.5	7.83	6.6	<1	2	9.579	14.1	0.8	3	5	1.79	0.042	<0.005	0.447	0.02	0.47	0.002	0.009	5.67
	Median	16	0.077	1.25	90.2	9.21	6.85	1	2.5	15.152	17.1	1.15	5	11	3.125	0.0675	0.0175	0.667	0.095	0.78	0.004	0.018	6.7
	Max	21	0.09	2	96	10.31	6.99	2	4	20.021	21.9	2	8	20	7.24	0.124	0.04	1.15	0.26	1.29	0.01	0.031	7.87
	Above Guideline	-	0	-	0	-	0	-	-	-	-	-	-	-	0	-	8	12	-	12	0	5	-
	Below Guideline	-	-	-	5	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E520	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	11	0.078	2.9	75	7.78	6.56	3	<1	9.164	13.2	2.6	10	22	1.03	0.114	0.008	<0.002	0.11	0.21	0.002	0.01	4.66
	Median	21.5	0.147	4.35	94.5	8.055	7.1	6	3	16.811	29.4	4.45	18.5	41	3.655	0.183	0.0195	0.0655	0.27	0.315	0.004	0.021	6.625
	Max	30	0.178	8.5	108.5	12.51	8.03	10	8	27.46	41.8	8.1	44	98	21.49	0.467	0.133	0.305	0.45	0.63	0.009	0.047	8.8
	Above Guideline	-	0	-	0	-	1	-	-	-	-	-	-	-	0	-	8	8	-	11	0	6	-
	Below Guideline	-	-	-	4	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E7021	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	3	0.063	1.8	72	6.79	6.25	2	2	9.718	9.9	1.7	8	18	1.78	0.096	<0.005	0.009	0.08	0.17	0.008	0.02	5.69
	Median	11.5	0.09	4.45	96.65	9.695	6.9	2.5	3	15.195	14.55	4.55	29	66	4.34	0.22	0.0145	0.0735	0.185	0.305	0.011	0.0295	11.35
	Max	18	0.109	14.5	102.4	11.39	7.14	4	34	21.923	20.1	15.9	78	176	13.54	0.65	0.039	0.284	0.6	0.71	0.018	0.056	17.2
	Above Guideline	-	0	-	0	-	0	-	-	-	-	-	-	-	0	-	9	11	-	8	2	11	-
	Below Guideline	-	-	-	4	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E706	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	10	0.079	1.6	82	7.4	6.57	2	2	9.252	12.7	1.8	8	16	1.44	0.084	<0.005	0.069	0.14	0.24	0.007	0.026	6.92
	Median	17	0.1015	3.25	97.85	9.635	7.15	3.5	3.5	15.563	19.5	3.45	20	44.5	3.645	0.159	0.041	0.2095	0.23	0.475	0.016	0.0435	9.285
	Max	30	0.132	6.8	101.1	11.61	7.31	5	6	26.447	31.3	7.2	43	94	7.34	0.35	0.093	0.486	0.46	0.63	0.034	0.082	12.6
	Above Guideline	-	0	-	0	-	0	-	-	-	-	-	-	-	0	-	11	12	-	11	6	12	-
	Below Guideline	-	-	-	2	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E7061	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	8	0.068	1.4	79.8	7.23	6.24	2	<1	9.418	11.5	1.4	7	15	1.14	0.074	<0.005	0.004	0.06	0.12	0.004	0.012	5.98
	Median	14.5	0.09	2.5	89.85	8.845	6.88	3	3	15.562	16.9	2.65	14.5	33.5	2.585	0.1315	0.0215	0.041	0.14	0.18	0.006	0.0225	7.57
	Max	26	0.112	6.4	98.3	11.09	7.08	4	42	23.328	27.7	6.2	27	61	5.72	0.245	0.04	0.446	0.4	0.51	0.01	0.066	11.4
	Above Guideline	-	0	-	0	-	0	-	-	-	-	-	-	-	0	-	9	10	-	5	0	8	-
	Below Guideline	-	-	-	6	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E822	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	8	0.05	1.2	82.2	7.09	6.83	<1	<1	6.194	6.8	1.1	6	13	1.68	0.06	<0.005	0.007	0.05	0.08	0.002	0.008	7.78
	Median	12	0.0585	2.2	90	9.17	7.17	<1	2	16.6	9.65	2.2	12.5	29	2.475	0.1075	0.0115	0.0225	0.12	0.17	0.005	0.0175	9.65
	Max	15	0.141	3.6	102.8	11.69	8.01	1	4	22.715	11.9	3.7	22	51	4.11	0.169	0.039	0.087	0.46	0.48	0.008	0.024	11.5
	Above Guideline	-	0	-	0	-	1	-	-	-	-	-	-	-	0	-	4	8	-	1	0	3	-

		Physicochemical															Nutrients						
Site Code	Statistic	Total Alkalinity as CaCO3 (mg/L)	Conductivity @25 C - Field (mS/cm)	Dissolved Organic Carbon (mg/L)	Dissolved Oxygen - Field (%Sat)	Dissolved Oxygen - Field (mg/L)	pH - Field	Sulphate (mg/L)	Suspended Solids (mg/L)	Temperature - Field (Deg C)	Total Hardness as CaCO3 (mg/L)	Total Organic Carbon (mg/L)	True Colour at 400nm (PES filter)	True Colour at 420nm (PES filter)	Turbidity - Field (NTU)	UV Absorbance @ 254nm	Nitrogen Ammoniacal (mg/L)	Nitrogen Oxidised (mg/L)	Nitrogen TKN (mg/L)	Nitrogen Total (mg/L)	Phosphorus Soluble Reactive (mg/L)	Phosphorus Total (mg/L)	Reactive Silica (mg/L)
	Below Guideline	-	-	-	6	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E8311	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	3	0.055	2.3	77.9	6.63	6.49	2	<1	5.294	7.7	2.3	8	18	0.94	0.094	<0.005	<0.002	0.08	0.08	<0.001	<0.005	3.22
	Median	6	0.0855	3.4	90.65	8.845	6.87	3	2	16.145	12.1	3.8	14	32.5	2.935	0.1345	0.0145	0.003	0.18	0.18	0.002	0.0125	4.7
	Max	9	0.114	10.8	97.8	12.4	7.46	7	4	23.529	20.2	11.3	58	124	9.16	0.497	0.031	0.016	0.34	0.34	0.004	0.022	6.09
	Above Guideline	-	0	-	0	-	0	-	-	-	-	-	-	-	0	-	7	1	-	3	0	1	-
	Below Guideline	-	-	-	5	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E847	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	18	0.092	2.5	95.7	7.97	7.21	2	<1	8.84	18	2.3	7	15	0.88	0.081	<0.005	0.004	0.15	0.16	0.002	0.007	7.32
	Median	35	0.143	5.75	100.4	9.475	7.685	4.5	5.5	17.765	34.4	5.4	24	53.5	5.77	0.243	0.0155	0.02	0.215	0.245	0.004	0.018	8.92
	Max	50	0.212	8.2	105.1	11.07	8.03	9	44	26.549	52.4	8.2	39	89	35.85	0.454	0.043	0.08	0.51	0.54	0.008	0.053	11.3
	Above Guideline	-	0	-	0	-	1	-	-	-	-	-	-	-	1	-	7	6	-	5	0	5	-
	Below Guideline	-	-	-	0	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E860	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	15	0.063	2.2	86.7	7.76	7.38	<1	1	5.446	13.4	2.3	11	26	2.85	0.115	<0.005	<0.002	0.14	0.14	0.003	0.019	12.7
	Median	34	0.0965	4.4	93.15	9.66	7.66	<1	4.5	14.958	23.2	4.3	18.5	43	4.85	0.204	0.0145	0.007	0.26	0.34	0.0085	0.0335	15.75
	Max	40	0.459	19.4	99.7	12.3	8.4	2	10	22.22	28.7	28.8	38	82	15.96	0.385	0.062	0.109	0.63	0.64	0.014	0.052	17.8
	Above Guideline	-	2	-	0	-	3	-	-	-	-	-	-	-	0	-	6	5	-	8	0	11	-
	Below Guideline	-	-	-	3	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E861	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	14	0.062	2.6	85	7.13	7.15	<1	2	6.4	14.2	2.8	8	19	2.01	0.097	<0.005	<0.002	0.13	0.13	0.003	0.013	9.56
	Median	33	0.1135	3.55	97.55	9.05	7.635	2	6	16.039	27.9	3.5	15	33	3.845	0.1535	0.011	0.0035	0.315	0.315	0.006	0.0255	11.8
	Max	43	0.144	7.9	102.3	12.39	7.98	6	25	24.694	37.2	8.4	34	78	16.83	0.408	0.024	0.135	0.42	0.51	0.01	0.047	13.6
	Above Guideline	-	0	-	0	-	0	-	-	-	-	-	-	-	0	-	5	4	-	9	0	9	-
	Below Guideline	-	-	-	2	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E890	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	11	0.159	6.1	55	4.89	6.51	1	2	5.75	17.2	5.8	17	39	2.95	0.241	0.005	<0.002	0.3	0.35	0.002	0.016	6.35
	Median	23.5	0.216	9.25	73.45	7.555	6.635	2	4	14.885	29.65	9.65	43.5	97.5	5.425	0.429	0.021	0.0245	0.5	0.525	0.004	0.036	9.02
	Max	30	0.291	15.8	91.8	10.88	7.32	4	9	22.301	44.4	15.8	67	161	13.01	0.719	0.104	0.078	0.64	0.66	0.01	0.05	10.5
	Above Guideline	-	0	-	0	-	0	-	-	-	-	-	-	-	0	-	11	8	-	12	0	10	-
	Below Guideline	-	-	-	11	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E891	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	84	0.184	3.2	34.5	3.47	7.28	3	1	4.756	83.5	3.3	14	30	0.86	0.152	0.006	0.012	0.21	0.22	0.006	0.025	12.1
	Median	132	0.433	5	72.1	8.195	7.55	7	3.5	15.112	127.5	5.05	19	41.5	3.215	0.2195	0.031	0.3335	0.395	0.87	0.0185	0.0445	24.45
	Max	159	0.479	14.1	99.7	10.29	8.1	10	11	21.666	156	13.7	58	122	20.16	0.739	0.08	1.27	1.21	1.92	0.032	0.116	29.2
	Above Guideline	-	10	-	0	-	1	-	-	-	-	-	-	-	0	-	9	11	-	11	7	12	-
	Below Guideline	-	-	-	10	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table A34 Shoalhaven system – catchments – part 2

		Metals										Cyanobacteria									Indicator Bacteria		
Site Code	Statistic	Aluminium Filtered (mg/L)	Aluminium Total (mg/L)	Calcium Filtered (mg/L)	Iron Filtered (mg/L)	Iron Total (mg/L)	Magnesium Filtered (mg/L)	Manganese Filtered (mg/L)	Manganese Total (mg/L)	Potassium Filtered (mg/L)	Sodium Filtered (mg/L)	Chlorophyll-a (ug/L)	Algal Count - Total (cells/mL)	Algal Biovolume - Total (mm3/L)	Algal ASU - Total (ASU/mL)	Algal Count - Cyanobacteria (cells/mL)	Algal Biovolume - Cyanobacteria (mm3/L)	Algal ASU - Cyanobacteria (ASU/mL)	Algal Count - Toxic Cyanobacteria (cells/mL)	Algal Biovolume - Toxic Cyanobacteria (mm3/L)	Clostridium perfringens (cfu/100 mL) or (spores/100mL)	E. coli (orgs/100mL) or (CFU/100mL)	Enterococci (cfu/100ml)
E300	n	12	12	12	12	12	12	12	12	12	12	12	3	3	3	3	3	3	3	3	12	12	12
	Min	<0.01	0.09	2.5	0.09	0.32	2.1	0.012	0.028	0.6	7.1	1.3	2510	0.705	414.1	204	0.001	2.69	0	0	<1	33	13
	Median	0.03	0.135	2.8	0.18	0.585	2.5	0.032	0.0415	0.7	8.05	3.15	15000	1.12	669.1	6730	0.013	37.8	0	0	6	113	260
	Max	0.06	0.17	3.3	0.44	0.91	3	0.157	0.163	0.9	9.3	9.56	19370	3.27	1606	16360	0.426	440.9	15270	0.426	76	340	470
	Above Guideline	-	12	-	-	-	-	-	0	-	-	3	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E301	n	12	12	12	12	12	12	12	12	12	12	12	0	0	0	0	0	0	0	0	12	12	12
	Min	0.01	0.06	2.5	0.09	0.36	1.9	0.014	0.017	0.4	6.6	1.34	-	-	-	-	-	-	-	-	3	16	5
	Median	0.02	0.115	3.1	0.175	0.565	2.3	0.0295	0.039	0.6	7.4	1.595	-	-	-	-	-	-	-	-	9	44	43
	Max	0.05	0.19	4	0.38	1.09	2.9	0.072	0.079	0.8	8.1	2.69	-	-	-	-	-	-	-	-	87	620	190
	Above Guideline	-	12	-	-	-	-	-	0	-	-	0	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E520	n	12	12	12	12	12	12	12	12	12	12	12	4	4	4	4	4	4	4	4	12	12	12
	Min	0.01	0.04	2.3	0.2	0.31	1.8	0.002	0.005	1.1	8.7	0.5	3570	3.47	258.3	0	0	0	0	0	<1	<1	<1
	Median	0.09	0.135	4.7	0.335	0.59	4.3	0.024	0.0345	1.55	14.75	2.725	90600	6.47	2727	79055	0.0475	246	0	0	1	10.5	5
	Max	0.46	0.76	7	0.52	1.23	6	0.039	0.059	2.3	19.6	29.1	268300	12.68	5552	256900	0.162	807.5	0	0	17	170	86
	Above Guideline	-	8	-	-	-	-	-	0	-	-	4	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E7021	n	12	12	12	12	12	12	12	12	12	12	12	0	0	0	0	0	0	0	0	12	12	12
	Min	0.01	0.08	1.9	0.1	0.39	1.2	0.009	0.015	0.8	8.6	0.49	-	-	-	-	-	-	-	-	1	60	2
	Median	0.08	0.175	2.9	0.25	0.5	1.75	0.0165	0.022	1.2	11.7	0.89	-	-	-	-	-	-	-	-	4	235	240
	Max	0.26	0.77	4.1	0.37	1.34	2.4	0.048	0.122	1.6	12.7	4.88	-	-	-	-	-	-	-	-	30	2300	5300
	Above Guideline	-	12	-	-	-	-	-	0	-	-	0	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E706	n	12	12	12	12	12	12	12	12	12	12	12	2	2	2	2	2	2	2	2	12	12	12
	Min	<0.01	0.05	2.6	0.14	0.44	1.5	0.016	0.021	0.9	8.6	0.98	1700	0.039	50.3	0	0	0	0	0	3	110	12
	Median	0.04	0.125	3.95	0.27	0.615	2.3	0.02	0.0275	1.25	11.55	2.6	1700	0.321	157.2	715	0.0075	14.75	0	0	7.5	415	215
	Max	0.14	0.31	6.6	0.4	0.79	3.6	0.047	0.056	2.5	14.2	7.14	1700	0.603	264.1	1430	0.015	29.5	0	0	31	1100	2900
	Above Guideline	-	11	-	-	-	-	-	0	-	-	2	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E7061	n	12	12	12	12	12	12	12	12	12	12	12	1	1	1	1	1	1	1	1	12	12	12
	Min	<0.01	0.05	2.3	0.16	0.32	1.4	0.01	0.017	0.5	7.7	0.5	3760	2.92	1130	0	0	0	0	0	<1	3	17
	Median	0.035	0.135	3.4	0.275	0.545	2.05	0.0215	0.029	0.9	10.4	0.805	3760	2.92	1130	0	0	0	0	0	7.5	75.5	100
	Max	0.14	0.46	5.8	0.99	1.57	3.2	0.075	0.106	1.5	12.4	16.6	3760	2.92	1130	0	0	0	0	0	58	560	750
	Above Guideline	-	11	-	-	-	-	-	0	-	-	1	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E822	n	12	12	12	12	12	12	12	12	12	12	12	0	0	0	0	0	0	0	0	12	12	12
	Min	0.02	0.06	0.9	0.1	0.2	1.1	<0.001	0.004	0.6	6	0.49	-	-	-	-	-	-	-	-	<1	1	9
	Median	0.04	0.09	1.3	0.18	0.35	1.5	0.008	0.01	0.75	7.3	0.79	-	-	-	-	-	-	-	-	3	18	45.5
	Max	0.1	0.18	1.8	0.4	0.55	1.8	0.012	0.017	1.1	8.8	2.18	-	-	-	-	-	-	-	-	8	93	160
	Above Guideline	-	12	-	-	-	-	-	0	-	-	0	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E8311	n	12	12	12	12	12	12	12	12	12	12	12	0	0	0	0	0	0	0	0	12	12	12
	Min	0.04	0.06	0.6	0.15	0.27	1.5	0.004	0.004	0.6	7.1	0.24	-	-	-	-	-	-	-	-	<1	1	<1
	Median	0.075	0.13	0.9	0.22	0.38	2.4	0.0075	0.0085	0.7	10.55	0.765	-	-	-	-	-	-	-	-	1	9	13

		Metals										Cyanobacteria									Indicator Bacteria		
Site Code	Statistic	Aluminium Filtered (mg/L)	Aluminium Total (mg/L)	Calcium Filtered (mg/L)	Iron Filtered (mg/L)	Iron Total (mg/L)	Magnesium Filtered (mg/L)	Manganese Filtered (mg/L)	Manganese Total (mg/L)	Potassium Filtered (mg/L)	Sodium Filtered (mg/L)	Chlorophyll-a (ug/L)	Algal Count - Total (cells/mL)	Algal Biovolume - Total (mm3/L)	Algal ASU - Total (ASU/mL)	Algal Count - Cyanobacteria (cells/mL)	Algal Biovolume - Cyanobacteria (mm3/L)	Algal ASU - Cyanobacteria (ASU/mL)	Algal Count - Toxic Cyanobacteria (cells/mL)	Algal Biovolume - Toxic Cyanobacteria (mm3/L)	Clostridium perfringens (cfu/100 mL) or (spores/100mL)	E. coli (orgs/100mL) or (CFU/100mL)	Enterococci (cfu/100ml)
	Max	0.49	0.77	1.5	0.45	0.58	4	0.018	0.022	1.1	13.6	2.92	-	-	-	-	-	-	-	-	11	330	99
	Above Guideline	-	12	-	-	-	-	-	0	-	-	0	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E847	n	12	12	12	12	12	12	12	12	12	12	12	2	2	2	2	2	2	2	2	12	12	12
	Min	<0.01	0.03	3.1	0.04	0.12	2.5	0.004	0.004	1	9.6	0.43	16050	0.977	913.9	6680	0.01	32.4	0	0	1	2	1
	Median	0.12	0.22	6.35	0.3	0.525	4.5	0.0065	0.0165	1.65	13.95	2.57	80075	1.8635	1046.5	73690	0.057	239	0	0	2	14.5	19
	Max	0.31	0.67	9.9	0.45	0.95	7.2	0.015	0.063	2.3	19.9	7.42	144100	2.75	1179	140700	0.104	445.6	0	0	18	95	260
	Above Guideline	-	8	-	-	-	-	-	0	-	-	2	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E860	n	12	12	12	12	12	12	12	12	12	12	12	1	1	1	1	1	1	1	1	12	12	12
	Min	0.03	0.1	2.9	0.16	0.4	1.5	0.008	0.014	1.2	6.6	0.86	493	0.324	127	0	0	0	0	0	<1	<1	11
	Median	0.07	0.16	5.15	0.285	0.59	2.5	0.014	0.0305	1.4	9.65	2.115	493	0.324	127	0	0	0	0	0	9.5	35	39.5
	Max	0.36	0.7	6.4	0.41	1.05	3.1	0.034	0.066	1.9	11.9	6.2	493	0.324	127	0	0	0	0	0	30	100	170
	Above Guideline	-	12	-	-	-	-	-	0	-	-	1	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E861	n	12	12	12	12	12	12	12	12	12	12	12	2	2	2	2	2	2	2	2	12	12	12
	Min	0.01	0.07	2.7	0.05	0.19	1.8	0.003	0.013	1.2	7.9	1.09	6460	1.19	726.7	544	0	1.63	0	0	<1	1	<1
	Median	0.085	0.15	5.4	0.27	0.51	3.5	0.0085	0.0265	1.55	12.8	3.125	9560	6.255	1436.4	714	0.001	4.3	0	0	8.5	21	16.5
	Max	0.3	0.51	7	0.42	0.72	4.8	0.023	0.066	2.5	16.2	15.25	12660	11.32	2146	884	0.002	6.97	0	0	23	140	89
	Above Guideline	-	12	-	-	-	-	-	0	-	-	2	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E890	n	12	12	12	12	12	12	12	12	12	12	12	5	5	5	5	5	5	5	5	12	12	12
	Min	0.04	0.09	2.6	0.3	0.61	2.6	0.028	0.031	1.2	19.2	0.33	816	0.604	310.1	68	0	1.02	0	0	<1	2	<1
	Median	0.085	0.12	4.7	0.575	1.105	4.35	0.1175	0.1985	2.15	28.75	4.445	1860	0.938	426.4	680	0	2.45	0	0	2	17	23
	Max	0.28	0.26	6.9	0.91	1.76	6.6	0.391	0.67	3.4	39	10.03	6410	2.65	1080	2040	0.003	9.59	0	0	27	87	150
	Above Guideline	-	12	-	-	-	-	-	0	-	-	5	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E891	n	12	12	12	12	12	12	12	12	12	12	12	6	6	6	6	6	6	6	6	12	12	12
	Min	<0.01	<0.01	17.6	0.08	0.28	9.6	0.042	0.049	2.8	23.3	1.67	2410	1.2	494.7	0	0	0	0	0	2	22	26
	Median	<0.01	0.055	26.6	0.33	0.87	14.9	0.075	0.096	4	34.7	5.075	4510	2.15	813.75	0	0	0	0	0	7	130	102.5
	Max	0.5	0.63	31.1	0.78	1.73	19.1	0.237	0.254	5.4	38.5	19.8	7750	3.89	1960	4160	0.108	100.2	3910	0.106	35	350	200
	Above Guideline	-	6	-	-	-	-	-	0	-	-	6	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table A35 Shoalhaven system – storages – part 1

		Physicochemical															Nutrients						
Station Code	Statistic	Total Alkalinity as CaCO3 (mg/L)	Conductivity @25 C - Field (mS/cm)	Dissolved Organic Carbon (mg/L)	Dissolved Oxygen - Field (%Sat)	Dissolved Oxygen - Field (mg/L)	pH - Field	Sulphate (mg/L)	Suspended Solids (mg/L)	Temperature - Field (Deg C)	Total Hardness as CaCO3 (mg/L)	Total Organic Carbon (mg/L)	True Colour at 400nm (PES filter)	True Colour at 420nm (PES filter)	Turbidity - Field (NTU)	UV Absorbance @ 254nm	Nitrogen Ammoniacal (mg/L)	Nitrogen Oxidised (mg/L)	Nitrogen TKN (mg/L)	Nitrogen Total (mg/L)	Phosphorus Soluble Reactive (mg/L)	Phosphorus Total (mg/L)	Reactive Silica (mg/L)
DBP1	n	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
	Min	11	0.078	2.3	81.1	6.9	6.99	3	4	10.68	13.5	2.2	10	22	3.73	0.128	0.006	0.008	0.21	0.37	<0.001	0.025	0.13
	Median	16	0.095	3.55	99.35	8.705	7.215	3	7	21.865	20.05	3.75	11.5	26.5	5.305	0.152	0.021	0.18	0.345	0.53	0.002	0.031	1.74
	Max	20	0.106	4.3	110.3	10.87	8.25	5	17	25.363	24.1	4.5	18	40	9.66	0.193	0.078	0.412	0.41	0.64	0.01	0.036	10.5
	Above Guideline	-	-	-	1	-	1	-	-	-	-	-	-	-	0	-	5	5	-	6	1	6	-
	Below Guideline	-	-	-	1	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DFF6	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	9	0.07	2.7	86.5	7.33	7.18	2	4	8.05	12.3	2.5	7	15	2.29	0.096	0.008	<0.002	0.22	0.37	<0.001	0.014	0.07
	Median	12.5	0.081	3.4	90.7	9.125	7.36	2.5	6.5	15.865	15.55	3.4	8.5	18.5	5.345	0.12	0.022	0.215	0.345	0.585	<0.001	0.0245	0.18
	Max	14	0.088	5	96.8	10.89	9.65	4	9	23.63	18.5	5.1	14	31	8.69	0.177	0.045	0.476	0.43	0.77	0.003	0.027	3.12
	Above Guideline	-	-	-	0	-	1	-	-	-	-	-	-	-	0	-	11	9	-	12	0	12	-
	Below Guideline	-	-	-	4	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DTA1	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	12	0.076	3	62.1	5.61	6.52	2	<1	10.48	13.2	2.9	7	15	0.42	0.096	<0.005	<0.002	0.14	0.21	0.003	0.01	5.45
	Median	22	0.1215	5.1	92.8	8.32	7.3	5	3.5	18.695	27	5.5	27	59.5	5.745	0.2615	0.032	0.1345	0.32	0.37	0.005	0.022	6.82
	Max	42	0.164	8.9	107.4	10.57	8.25	7	10	25.55	43	8.2	47	104	22.58	0.516	0.088	0.317	0.54	0.76	0.012	0.054	9.05
	Above Guideline	-	-	-	0	-	2	-	-	-	-	-	-	-	1	-	11	10	-	7	5	10	-
	Below Guideline	-	-	-	5	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DTA5	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	11	0.057	2.8	80.5	6.67	6.76	2	2	9.4	12.2	3	8	17	1.11	0.096	0.009	<0.002	0.17	0.18	0.002	0.01	6.4
	Median	27.5	0.1235	6.8	89.2	8.46	7.295	5	3.5	18.3	32.4	6.85	29	64.5	4.05	0.2715	0.0445	0.04	0.335	0.385	0.0045	0.0235	8.54
	Max	51	0.188	10.9	96	10.54	8.04	8	11	25.59	48.9	10.2	58	130	24.61	0.604	0.161	0.168	0.55	0.71	0.009	0.056	9.57
	Above Guideline	-	-	-	0	-	1	-	-	-	-	-	-	-	1	-	11	10	-	8	5	11	-
	Below Guideline	-	-	-	6	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DTA8	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	6	0.065	1.8	74	6.27	6.78	3	2	9.89	10.8	2	7	16	2.4	0.088	0.018	0.009	0.2	0.32	<0.001	0.024	0.19
	Median	16.5	0.0965	4.1	91.85	8.815	7.085	3.5	6.5	17.465	19.15	4.05	15.5	33.5	5.365	0.15	0.037	0.211	0.295	0.49	0.0045	0.034	5.04
	Max	25	0.115	9.4	97.1	10.79	7.97	5	15	24.67	26.2	9.2	54	121	11.78	0.438	0.073	0.451	0.46	0.68	0.023	0.045	11.2
	Above Guideline	-	-	-	0	-	0	-	-	-	-	-	-	-	0	-	12	11	-	11	4	12	-
	Below Guideline	-	-	-	3	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DWI1	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	10	0.065	3.8	86.6	8	6.56	1	2	8.94	12.6	3.7	7	16	1.84	0.113	<0.005	<0.002	0.27	0.35	<0.001	0.006	<0.05
	Median	12	0.0685	4.25	93.25	9.14	7.385	2	5.5	15.56	13.8	4.1	12	25.5	3.69	0.1455	0.0295	0.11	0.38	0.495	<0.001	0.02	0.35
	Max	13	0.071	5.1	98.7	10.93	8.01	2	10	22.68	16.1	5.4	17	38	10.15	0.22	0.047	0.148	0.51	0.54	0.002	0.036	2.55
	Above Guideline	-	-	-	0	-	1	-	-	-	-	-	-	-	0	-	10	9	-	11	0	11	-
	Below Guideline	-	-	-	4	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table A36 Shoalhaven system – storages – part 2

		Metals										Cyanobacteria												Indicator bacteria		
Station Code	Statistic	Aluminium Filtered (mg/L)	Aluminium Total (mg/L)	Calcium Filtered (mg/L)	Iron Filtered (mg/L)	Iron Total (mg/L)	Magnesium Filtered (mg/L)	Manganese Filtered (mg/L)	Manganese Total (mg/L)	Potassium Filtered (mg/L)	Sodium Filtered (mg/L)	Chlorophyll-a (ug/L)	Algal Count - Total (cells/mL)	Algal Biovolume - Total (mm3/L)	Algal ASU - Total (ASU/mL)	Algal Count - Cyanobacteria (cells/mL)	Algal Biovolume - Cyanobacteria (mm3/L)	Algal ASU - Cyanobacteria (ASU/mL)	Algal Count - Toxic Cyanobacteria (cells/mL)	Algal Biovolume - Toxic Cyanobacteria (mm3/L)	Microcystin LR+RR+YR (ug/L)	2-Methylisoborneol (MIB) (ng/L)	Geosmin (ng/L)	Clostridium perfringens (cfu/100 mL) or (spores/100mL)	E. coli (orgs/100mL) or (CFU/100mL)	Enterococci (cfu/100ml)
DBP1	n	6	6	6	6	6	6	6	6	6	6	39	39	39	39	39	39	39	39	39	8	39	39	6	6	6
	Min	<0.01	0.05	2.6	0.05	0.15	1.7	<0.001	0.022	1	8.7	0.99	391	0.144	61.1	0	0	0	0	0	<0.15	<1	2	<1	<1	<1
	Median	0.07	0.165	3.85	0.195	0.44	2.5	0.007	0.034	1.3	10.75	14.69	33350	4.36	2272	26510	0.077	121.3	476	0.013	<0.15	<1	4	4	26	13
	Max	0.13	0.22	4.7	0.26	0.62	3	0.027	0.058	1.4	11.8	39.79	612700	8.78	4619	604600	0.687	1328	9420	0.293	<0.15	2	18	7	100	110
	Above Guideline	-	5	-	-	-	-	-	0	-	-	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DFF6	n	12	12	12	12	12	12	12	12	12	12	39	38	38	38	38	38	38	38	38	0	0	0	12	12	12
	Min	0.02	0.08	2.3	0.03	0.14	1.6	<0.001	0.008	0.9	7.5	0.72	9630	0.628	404.4	4490	0.028	42.1	0	0	-	-	-	<1	<1	<1
	Median	0.045	0.115	2.85	0.065	0.205	2.05	0.001	0.0155	1.2	8.8	10.01	93940	1.82	1649.5	83365	0.437	619.25	6605	0.192	-	-	-	1	2	2.5
	Max	0.09	0.34	3.4	0.13	0.46	2.5	0.004	0.036	1.5	11	18.39	746300	33.77	38660	585900	1.47	1658	26570	0.799	-	-	-	6	10	12
	Above Guideline	-	12	-	-	-	-	-	0	-	-	38	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DTA1	n	12	12	12	12	12	12	12	12	12	12	12	2	2	2	2	2	2	2	2	0	0	0	12	12	12
	Min	<0.01	0.01	2.5	0.04	0.13	1.7	<0.001	0.009	1.2	8	0.8	3610	0.435	323.8	0	0	0	0	0	-	-	-	<1	<1	<1
	Median	0.13	0.2	4.95	0.3	0.595	3.55	0.0175	0.032	1.65	12.9	3.07	13000	0.5915	340.6	10375	0.0045	24.1	0	0	-	-	-	1.5	2	1
	Max	0.47	0.94	8.3	0.53	1.1	5.4	0.084	0.125	2.3	17.9	7.1	22390	0.748	357.4	20750	0.009	48.2	0	0	-	-	-	37	50	11
	Above Guideline	-	9	-	-	-	-	-	0	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DTA5	n	12	12	12	12	12	12	12	12	12	12	12	1	1	1	1	1	1	1	1	0	0	0	12	12	12
	Min	<0.01	0.03	2.1	0.06	0.16	1.7	<0.001	0.017	1.2	7.5	0.62	33590	1.75	1063	24850	0.059	142.5	653	0.018	-	-	-	<1	<1	<1
	Median	0.115	0.235	5.8	0.32	0.535	4.35	0.0125	0.03	1.75	13.5	3.135	33590	1.75	1063	24850	0.059	142.5	653	0.018	-	-	-	2.5	3.5	1.5
	Max	0.68	1.46	9.7	0.66	1.52	6.1	0.053	0.071	2.6	18.2	6.2	33590	1.75	1063	24850	0.059	142.5	653	0.018	-	-	-	38	61	16
	Above Guideline	-	10	-	-	-	-	-	0	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DTA8	n	12	12	12	12	12	12	12	12	12	12	39	27	27	27	27	27	27	27	27	0	0	0	12	12	12
	Min	<0.01	0.08	2.2	0.07	0.26	1.3	0.001	0.026	1	7.9	0.39	6280	0.589	360.2	136	0	2.04	0	0	-	-	-	<1	1	4
	Median	0.065	0.155	3.8	0.215	0.545	2.35	0.019	0.0455	1.35	10.95	13.68	38910	4.68	2481	28140	0.07	131.8	459	0.016	-	-	-	7	33.5	29.5
	Max	0.31	0.74	5.2	0.41	1.06	3.2	0.046	0.066	1.5	12.5	49.34	895400	11.6	5848	883500	0.559	2002	12660	0.39	-	-	-	18	460	500
	Above Guideline	-	12	-	-	-	-	-	0	-	-	27	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DWI1	n	12	12	12	12	12	12	12	12	12	12	44	44	44	44	44	44	44	44	44	44	44	44	12	12	12
	Min	<0.01	0.03	2.1	0.01	0.08	1.8	<0.001	0.013	1	6.4	3.16	10200	0.225	284.9	6680	0.042	56.9	272	0.006	<0.15	<1	<1	<1	<1	<1
	Median	0.05	0.11	2.35	0.095	0.235	2	0.002	0.0185	1.3	7.25	8.42	93840	1.87	1888.5	76115	0.4235	718.6	4890	0.1445	0.17	<1	2	1.5	1	<1
	Max	0.15	0.3	2.6	0.23	0.65	2.4	0.006	0.046	1.4	7.8	18	737200	9.21	3821	728000	1.57	2093	22650	0.664	0.44	<1	6	4	50	66
	Above Guideline	-	9	-	-	-	-	-	0	-	-	36	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table A37 Shoalhaven system – storages – part 3

		Health related physical chemical									
Site Code	Statistic	Arsenic Total (mg/L)	Barium Total (mg/L)	Beryllium Total (mg/L)	Boron Total (mg/L)	Iodide (mg/L)	Mercury Total (mg/L)	Molybdenum Total (mg/L)	Selenium Total (mg/L)	Silver Total (mg/L)	Tin Total (mg/L)
DTA1	n	2	2	2	2	2	2	2	2	2	2
	Min	<0.001	0.019	<0.001	<0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001
	Median	<0.001	0.0215	<0.001	0.05	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001
	Max	0.001	0.024	<0.001	0.09	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001
	Above Guideline	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-
DWI1	n	2	2	2	2	2	2	2	2	2	2
	Min	<0.001	0.01	<0.001	<0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001
	Median	<0.001	0.0105	<0.001	<0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	0.0055
	Max	<0.001	0.011	<0.001	<0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	0.01
	Above Guideline	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-

Table A38 Shoalhaven system – storages – part 4

Site Code	Statistic	Crypto oocysts IFA (Adj for Recovery for 10L)	Giardia cysts IFA (Adj for Recovery to 10L)
DWI1	n	52	52
	Min	<1	<1
	Median	<1	<2
	Max	2	2
	Above Guideline	-	-
	Below Guideline	-	-

Table A39 Shoalhaven system – water filtration plants – part 1

		Physicochemical													Metals						Indicator bacteria			
Station Code	Statistic	Total Alkalinity as CaCO3 (mg/L)	Conductivity @25 C - Field (mS/cm)	Dissolved Organic Carbon (mg/L)	Dissolved Oxygen - Field (%Sat)	Dissolved Oxygen - Field (mg/L)	pH - Field	Temperature - Field (Deg C)	Total Hardness as CaCO3 (mg/L)	Total Organic Carbon (mg/L)	True Colour at 400nm (PES filter)	True Colour at 420nm (PES filter)	Turbidity - Field (NTU)	UV Absorbance @ 254nm	Aluminium Filtered (mg/L)	Aluminium Total (mg/L)	Iron Filtered (mg/L)	Iron Total (mg/L)	Manganese Filtered (mg/L)	Manganese Total (mg/L)	Clostridium perfringens (cfu/100 mL) or (spores/100mL)	Coliforms Total (cfu/100mL)	E. coli (orgs/100mL) or (CFU/100mL)	Enterococci (cfu/100ml)
HKV1	n	12	13	12	13	13	13	13	12	12	12	12	13	12	12	12	12	12	12	12	12	12	12	12
	Min	3	0.05	2.3	80.8	7	6.39	10.665	8.6	2.3	9	20	3.73	0.126	<0.01	0.06	0.05	0.19	<0.001	0.014	<1	290	2	<1
	Median	15	0.092	3.7	97.8	9.06	7.16	18.71	15.05	3.7	12	27.5	7.92	0.1575	0.075	0.215	0.165	0.57	0.0055	0.04	5	3550	41	30
	Max	20	0.106	11.6	110.3	11.37	8.25	25.363	23.9	11.5	71	162	20.24	0.608	0.35	0.68	0.41	0.88	0.039	0.064	19	9800	810	830
	Above Guideline	0	-	-	-	-	0	-	0	-	1	-	1	-	-	-	-	0	-	0	-	-	-	-
	Below Guideline	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HWI1	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	11	0.066	3.7	85.8	7.56	6.89	9.02	12.6	3.6	7	15	2.21	0.112	<0.01	0.03	<0.01	0.09	<0.001	0.018	<1	82	<1	<1
	Median	12	0.071	4.1	89.55	8.895	7.295	16.522	13.8	3.9	11.5	26	4.345	0.148	0.04	0.105	0.11	0.265	0.002	0.0255	2	690	<1	<1
	Max	16	0.076	4.8	95.9	10.37	8.44	23.391	16.1	5	13	30	10.98	0.222	0.16	0.37	0.24	0.75	0.012	0.045	6	33000	110	88
	Above Guideline	0	-	-	-	-	0	-	0	-	0	-	0	-	-	-	-	0	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table A40 Shoalhaven system – water filtration plants – part 2

		Cyanobacteria									Health related physical chemical										
Station Code	Statistic	Algal Count - Total (cells/mL)	Algal Biovolume - Total (mm3/L)	Algal ASU - Total (ASU/mL)	Algal Count - Cyanobacteria (cells/mL)	Algal Biovolume - Cyanobacteria (mm3/L)	Algal ASU - Cyanobacteria (ASU/mL)	Algal Count - Toxic Cyanobacteria (cells/mL)	Algal Biovolume - Toxic Cyanobacteria (mm3/L)	Microcystin LR+RR+YR (ug/L)	Arsenic Total (mg/L)	Barium Total (mg/L)	Beryllium Total (mg/L)	Boron Total (mg/L)	Iodide (mg/L)	Mercury Total (mg/L)	Molybdenum Total (mg/L)	Selenium Total (mg/L)	Silver Total (mg/L)	Tin Total (mg/L)	Uranium Total (mg/L)
HKV1	n	12	12	12	12	12	12	12	12	3	4	1	1	1	1	4	1	4	1	1	1
	Min	918	0.611	306.4	0	0	0	0	0	<0.15	<0.001	0.012	<0.001	<0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001	<0.001
	Median	30520	2.665	1440.5	21845	0.0405	86.15	643	0.017	<0.15	<0.001	0.012	<0.001	<0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001	<0.001
	Max	177100	11.27	4028	171200	0.377	509.8	4020	0.116	<0.15	<0.001	0.012	<0.001	<0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001	<0.001
	Above Guideline	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HWI1	n	12	12	12	12	12	12	12	12	11	4	1	1	1	1	4	1	4	1	1	1
	Min	19260	0.559	366.2	16840	0.02	46.3	476	0.013	<0.15	<0.001	0.01	<0.001	<0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001	<0.001
	Median	80295	2.15	1644	60735	0.392	726.05	4980	0.1385	0.16	<0.001	0.01	<0.001	<0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001	<0.001
	Max	581500	5.38	3656	572600	1.24	1565	15980	0.478	0.37	<0.001	0.01	<0.001	<0.01	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001	<0.001
	Above Guideline	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table A41 Shoalhaven system – water filtration plants – part 3

		Pesticides												Synthetic organic compounds & radionuclides			
Station Code	Statistic	2,4-D (ug/L)	Atrazine (ug/L)	Chlorfenvinphos (E+Z) (ug/L)	Chlorpyrifos (ug/L)	Diuron (ug/L)	Fluropanate (ug/L)	Glyphosate (ug/L)	Hexazinone (ug/L)	MCPA (ug/L)	Picloram (ug/L)	Simazine (ug/L)	Triclopyr (ug/L)	Benzene (ug/L)	Gross Alpha (Bq/L)	Gross Beta minus Potassium 40 (Bq/L)	Vinyl chloride (ug/L)
HKV1	n	4	4	4	4	4	4	4	4	4	4	4	4	4	1	1	4
	Min	<0.01	<0.01	<0.02	<0.02	<0.02	<0.1	<10	<0.02	<0.01	<0.05	<0.02	<0.01	<0.10	<0.05	<0.10	<0.050
	Median	<0.01	<0.01	<0.02	<0.02	<0.02	<0.1	<10	<0.02	<0.01	<0.05	<0.02	<0.01	<0.10	<0.05	<0.10	<0.050
	Max	<0.01	<0.01	<0.02	<0.02	<0.02	<0.1	<10	<0.02	<0.01	<0.05	<0.02	<0.01	<0.10	<0.05	<0.10	<0.050
	Above Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HWI1	n	4	4	4	4	4	4	4	4	4	4	4	4	4	1	1	4
	Min	<0.01	<0.01	<0.02	<0.02	<0.02	<0.1	<10	<0.02	<0.01	<0.05	<0.02	<0.01	<0.10	<0.05	<0.10	<0.050
	Median	<0.01	<0.01	<0.02	<0.02	<0.02	<0.1	<10	<0.02	<0.01	<0.05	<0.02	<0.01	<0.10	<0.05	<0.10	<0.050
	Max	<0.01	<0.01	<0.02	<0.02	<0.02	<0.1	<10	<0.02	<0.01	<0.05	<0.02	<0.01	<0.10	<0.05	<0.10	<0.050
	Above Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

6. Picnic Areas

Table A42 Picnic areas – part 1

		Physicochemical												Cyanobacteria								
Station Code	Statistic	Total Alkalinity as CaCO3 (mg/L)	Conductivity @25 C - Field (mS/cm)	Dissolved Organic Carbon (mg/L)	Dissolved Oxygen - Field (%Sat)	Dissolved Oxygen - Field (mg/L)	pH - Field	Sulphate (mg/L)	Temperature - Field (Deg C)	Total Hardness as CaCO3 (mg/L)	Total Organic Carbon (mg/L)	True Colour at 400nm (PES filter)	Turbidity - Field (NTU)	UV Absorbance @ 254nm	Chlorophyll-a (ug/L)	Algal Count - Total (cells/mL)	Algal Biovolume - Total (mm3/L)	Algal ASU - Total (ASU/mL)	Algal Count - Cyanobacteria (cells/mL)	Algal Biovolume - Cyanobacteria (mm3/L)	Algal ASU - Cyanobacteria (ASU/mL)	Algal Count - Toxic Cyanobacteria (cells/mL)	Algal Biovolume - Toxic Cyanobacteria (mm3/L)
HAV3	n	12	52	12	52	52	52	4	52	12	12	12	52	12	12	0	0	0	0	0	0	0	0
	Min	8	0.04	1.8	79.7	6.97	3.52	1	9.9	7.5	1.9	2	0.08	0.034	<0.20	-	-	-	-	-	-	-	-
	Median	13	0.087	2.45	91.5	8.53	7.74	1.5	18.55	15.5	2.45	4	0.785	0.056	<0.20	-	-	-	-	-	-	-	-
	Max	21	0.258	3	101.4	10.23	8.89	3	24.4	32.9	3	8	7.53	0.096	<0.24	-	-	-	-	-	-	-	-
	Above Guideline	-	-	-	-	-	2	-	-	-	-	-	2	-	0	-	-	-	-	-	-	0	-
	Below Guideline	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HAVR	n		52		52	52	52		52				52										
	Min		0.054		93.5	7.93	6.4		8.5				0.04										
	Median		0.0885		96.55	8.94	7.47		18.7				0.645										
	Max		0.133		101.8	11.44	7.82		25.4				2.6										
	Above Guideline		-		-	-	0		-				0										
	Below Guideline		-		-	-	1		-				-										
HCA1 / HCA2 / HCA3	n	12	51	12	51	51	51	4	51	12	12	12	51	12	12	0	0	0	0	0	0	0	0
	Min	3	0.08	<0.2	19.7	1.7	5.76	<1	10.72	5.8	<0.2	<1	0.02	<0.010	<0.20	-	-	-	-	-	-	-	-
	Median	5	0.095	0.6	90	8.21	6.57	2	18.33	7.75	0.6	7	0.95	0.0345	<0.20	-	-	-	-	-	-	-	-
	Max	36	0.116	5.8	100.3	10.65	7.2	4	24.6	15	5.7	25	6.85	0.225	0.2	-	-	-	-	-	-	-	-
	Above Guideline	-	-	-	-	-	0	-	-	-	-	-	3	-	0	-	-	-	-	-	-	0	-
	Below Guideline	-	-	-	-	-	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HCAR	n		52		52	52	52		52				52										
	Min		0.04		80.5	7.71	5.99		11.04				0.27										
	Median		0.093		96.3	8.855	6.81		18.55				1.095										
	Max		0.119		103.6	10.7	7.28		25.9				4.02										
	Above Guideline		-		-	-	0		-				3										
	Below Guideline		-		-	-	9		-				-										
HCO6	n	12	52	12	52	52	52	4	52	12	12	12	52	12	12	0	0	0	0	0	0	0	0
	Min	12	0.086	2.6	73.5	6.88	6.32	2	9.03	12.2	2.8	9	0.04	0.102	<0.20	-	-	-	-	-	-	-	-
	Median	13	0.097	3.25	88.5	8.47	7.17	2	18	14.75	3.25	12	1.29	0.128	<0.20	-	-	-	-	-	-	-	-
	Max	16	0.115	4.2	98.9	10.51	7.68	2	25.5	16.3	4.1	19	5.53	0.18	0.66	-	-	-	-	-	-	-	-
	Above Guideline	-	-	-	-	-	0	-	-	-	-	-	3	-	0	-	-	-	-	-	-	0	-
	Below Guideline	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HCOR	n		52		52	52	52		52				52										
	Min		0.05		90.1	7.82	6.38		10.45				0										
	Median		0.095		95.95	8.825	7.29		18.85				0.765										
	Max		0.113		102.1	10.91	7.78		24.5				3.19										
	Above Guideline		-		-	-	0		-				1										
	Below Guideline		-		-	-	1		-				-										
HFFR2	n	13	53	13	53	53	53	4	53	13	13	13	53	13	13	0	0	0	0	0	0	0	0
	Min	43	0.198	1.6	86.6	7.57	7.63	16	7.186	60	1.6	<1	0.01	0.027	<0.20	-	-	-	-	-	-	-	-
	Median	54	0.211	2.1	92.8	9.27	8	18.5	15.876	71.8	2.1	<1	0.58	0.029	<0.20	-	-	-	-	-	-	-	-
	Max	58	0.235	7	98	11.76	8.74	24	24.582	89.5	7	<1	2.91	0.034	<0.24	-	-	-	-	-	-	-	-
	Above Guideline	-	-	-	-	-	4	-	-	-	-	-	0	-	0	-	-	-	-	-	-	0	-

		Physicochemical													Cyanobacteria								
Station Code	Statistic	Total Alkalinity as CaCO3 (mg/L)	Conductivity @25 C - Field (mS/cm)	Dissolved Organic Carbon (mg/L)	Dissolved Oxygen - Field (%Sat)	Dissolved Oxygen - Field (mg/L)	pH - Field	Sulphate (mg/L)	Temperature - Field (Deg C)	Total Hardness as CaCO3 (mg/L)	Total Organic Carbon (mg/L)	True Colour at 400nm (PES filter)	Turbidity - Field (NTU)	UV Absorbance @ 254nm	Chlorophyll-a (ug/L)	Algal Count - Total (cells/mL)	Algal Biovolume - Total (mm3/L)	Algal ASU - Total (ASU/mL)	Algal Count - Cyanobacteria (cells/mL)	Algal Biovolume - Cyanobacteria (mm3/L)	Algal ASU - Cyanobacteria (ASU/mL)	Algal Count - Toxic Cyanobacteria (cells/mL)	Algal Biovolume - Toxic Cyanobacteria (mm3/L)
	Below Guideline	-	-	-	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HFFR	n		52		52	52	52		52				52										
	Min		0.004		82.4	7.69	7.08		8.807				0.01										
	Median		0.209		94.35	9.15	8.1		16.786				0.57										
	Max		0.248		98.9	10.9	8.87		24.84				5.74										
	Above Guideline		-		-	-	3		-				2										
	Below Guideline		-		-	-	0		-				-										

Table A43 Picnic areas – part 2

		Metals							Health related physical chemical									Indicator bacteria	
Station Code	Statistic	Aluminium Total (mg/L)	Copper Total mg/L	Iron Filtered (mg/L)	Iron Total (mg/L)	Lead Total (mg/L)	Manganese Filtered (mg/L)	Manganese Total (mg/L)	Arsenic Total (mg/L)	Barium Total (mg/L)	Beryllium Total (mg/L)	Iodide (mg/L)	Mercury Total (mg/L)	Molybdenum Total (mg/L)	Selenium Total (mg/L)	Silver Total (mg/L)	Tin Total (mg/L)	Coliforms Total (cfu/100mL)	E. coli (orgs/100mL) or (CFU/100mL)
HAV3	n	13	13	52	52	13	52	52	4	4	4	4	4	4	4	4	4	52	52
	Min	<0.01	0.074	<0.01	0.1	<0.001	<0.001	0.004	<0.001	0.006	<0.001	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001	<1	<1
	Median	0.03	0.207	0.1	0.21	0.003	0.005	0.01	<0.001	0.007	<0.001	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001	<1	<1
	Max	0.05	1.29	0.22	0.76	0.009	0.045	0.078	<0.001	0.011	<0.001	<0.010	<0.0001	<0.001	<0.0010	<0.001	0.002	160	7
	Above Guideline	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	-	3	1
	Below Guideline	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HAVR	n			52	52		52	52										52	52
	Min			<0.01	0.04		<0.001	0.002										<1	<1
	Median			0.08	0.185		0.002	0.007										<1	<1
	Max			0.19	0.33		0.015	0.042										<1	<1
	Above Guideline			0	2		0	0										0	0
	Below Guideline			-	-		-	-										-	-
HCA1 / HCA2 / HCA3	n	13	13	51	51	13	51	51	4	4	4	4	4	4	4	4	4	51	51
	Min	<0.01	0.003	<0.01	<0.01	<0.001	<0.001	0.004	<0.001	0.007	<0.001	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001	<1	<1
	Median	0.04	0.022	0.22	0.3	0.002	0.008	0.017	<0.001	0.0455	<0.001	<0.010	<0.0001	<0.001	<0.0010	0.005	<0.001	<1	<1
	Max	0.15	1.88	0.49	1.58	0.004	0.089	0.145	<0.001	0.347	<0.001	<0.010	<0.0001	<0.001	<0.0010	0.007	<0.001	<1	<1
	Above Guideline	0	0	10	25	0	0	2	0	0	0	0	0	0	0	0	-	0	0
	Below Guideline	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HCAR	n			52	52		52	52										52	52
	Min			0.11	0.19		<0.001	0.006										<1	<1
	Median			0.32	0.57		0.007	0.0175										<1	<1
	Max			0.46	1.15		0.102	0.107										920	<1
	Above Guideline			29	51		1	2										6	0
	Below Guideline			-	-		-	-										-	-
HCO6	n	13	13	52	52	13	52	52	4	4	4	4	4	4	4	4	4	52	52
	Min	0.01	0.237	0.05	0.19	<0.001	0.002	0.008	<0.001	0.015	<0.001	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001	<1	<1
	Median	0.04	0.941	0.235	0.44	0.001	0.008	0.03	<0.001	0.0185	<0.001	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001	<1	<1
	Max	0.1	1.24	0.48	0.86	0.002	0.114	0.189	<0.001	0.02	<0.001	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001	8	<1
	Above Guideline	0	0	12	48	0	2	8	0	0	0	0	0	0	0	0	-	2	0
	Below Guideline	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HCOR	n			52	52		52	52										52	52
	Min			0.03	0.11		<0.001	0.006										<1	<1
	Median			0.16	0.295		0.0045	0.018										<1	<1
	Max			0.31	0.59		0.241	0.409										2	<1
	Above Guideline			2	24		6	7										2	0
	Below Guideline			-	-		-	-										-	-
HFFR2	n	13	13	53	53	13	53	53	4	4	4	4	4	4	4	4	4	53	53
	Min	0.04	0.003	<0.01	<0.01	<0.001	<0.001	<0.001	<0.001	0.008	<0.001	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001	<1	<1
	Median	0.09	0.008	<0.01	0.05	<0.001	<0.001	0.01	<0.001	0.0085	<0.001	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001	<1	<1
	Max	0.18	0.013	0.1	0.26	<0.001	0.004	0.076	<0.001	0.009	<0.001	<0.010	<0.0001	<0.001	<0.0010	<0.001	<0.001	600	<1
	Above Guideline	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	9	0
	Below Guideline	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HFFR	n			52	52		52	52										52	52
	Min			<0.01	<0.01		<0.001	<0.001										<1	<1
	Median			<0.01	0.04		<0.001	0.01										<1	<1

		Metals							Health related physical chemical									Indicator bacteria	
Station Code	Statistic	Aluminium Total (mg/L)	Copper Total mg/L	Iron Filtered (mg/L)	Iron Total (mg/L)	Lead Total (mg/L)	Manganese Filtered (mg/L)	Manganese Total (mg/L)	Arsenic Total (mg/L)	Barium Total (mg/L)	Beryllium Total (mg/L)	Iodide (mg/L)	Mercury Total (mg/L)	Molybdenum Total (mg/L)	Selenium Total (mg/L)	Silver Total (mg/L)	Tin Total (mg/L)	Coliforms Total (cfu/100mL)	E. coli (orgs/100mL) or (CFU/100mL)
	Max			0.03	0.13		0.005	0.068										2	<1
	Above Guideline			0	0		0	0										3	0
	Below Guideline			-	-		-	-										-	-

7. Downstream of storages

Table A44 Downstream of storages – part 1

		Physicochemical											Nutrients							Metals					
Station Code	Statistic	Total Alkalinity as CaCO3 (mg/L)	Conductivity @25 C - Field (mS/cm)	Dissolved Organic Carbon (mg/L)	Dissolved Oxygen - Field (%Sat)	Dissolved Oxygen - Field (mg/L)	pH - Field	Suspended Solids (mg/L)	Temperature - Field (Deg C)	True Colour at 400nm (PES filter)	Turbidity - Field (NTU)	UV Absorbance @ 254nm	Nitrogen Ammoniacal (mg/L)	Nitrogen Oxidised (mg/L)	Nitrogen TKN (mg/L)	Nitrogen Total (mg/L)	Phosphorus Soluble Reactive (mg/L)	Phosphorus Total (mg/L)	Reactive Silica (mg/L)	Aluminium Filtered (mg/L)	Aluminium Total (mg/L)	Iron Filtered (mg/L)	Iron Total (mg/L)	Manganese Filtered (mg/L)	Manganese Total (mg/L)
E303	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	15	0.084	3.4	65.5	5.98	6.81	1	7.1	6	3.08	0.113	0.019	0.026	0.31	0.43	<0.001	<0.005	0.47	<0.01	0.07	0.02	0.27	0.016	0.021
	Median	19	0.097	4	84.05	8.375	6.96	6	15.322	10	5.15	0.1455	0.0415	0.1375	0.4	0.53	0.001	0.023	1.17	0.05	0.105	0.14	0.41	0.0285	0.0595
	Max	30	0.338	6.6	89.5	10.73	7.44	10	20.233	12	10.91	0.19	0.237	0.23	0.5	0.7	0.005	0.033	1.75	0.21	0.26	0.33	0.7	0.185	0.224
	Above Guideline	-	-	-	0	-	0	-	-	-	0	-	-	-	-	10	-	0	-	-	-	-	-	-	-
	Below Guideline	-	-	-	7	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E851	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	10	0.087	3	64.1	5.86	6.31	2	10.244	7	0.92	0.096	0.012	0.006	0.16	0.24	0.002	0.007	5.35	<0.01	0.02	0.04	0.09	0.002	0.01
	Median	25.5	0.128	5.55	102.2	8.825	7.265	2	19.445	26.5	7.075	0.2595	0.034	0.0985	0.275	0.395	0.0045	0.0195	7.29	0.145	0.21	0.285	0.55	0.022	0.0425
	Max	43	0.187	9	110.2	11.99	7.96	9	27.781	46	23.52	0.509	0.108	0.297	0.5	0.8	0.011	0.052	8.98	0.47	0.84	0.5	0.99	0.066	0.094
	Above Guideline	-	-	-	1	-	0	-	-	-	0	-	-	-	-	3	-	1	-	-	-	-	-	-	-
	Below Guideline	-	-	-	2	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
G0515	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	3	0.105	3	84.9	7.12	6.57	<1	9.1	7	0.32	0.086	<0.005	<0.002	0.07	0.08	<0.001	<0.005	2.49	0.02	0.03	0.11	0.21	0.004	0.004
	Median	7.5	0.1595	3.8	95.7	8.495	6.84	<1	19.2	10.5	1.065	0.1325	0.0055	0.0075	0.145	0.16	0.001	0.0055	3.62	0.045	0.075	0.215	0.36	0.008	0.012
	Max	11	0.175	8.4	100.6	11.1	7.17	14	27.2	35	4.39	0.32	0.012	0.088	0.22	0.31	0.004	0.012	3.99	0.26	0.38	0.37	0.6	0.015	0.02
	Above Guideline	-	-	-	0	-	0	-	-	-	0	-	-	-	-	0	-	0	-	-	-	-	-	-	-
	Below Guideline	-	-	-	1	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N44	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	30	0.158	3.9	84.3	6.7	7.13	1	12.86	7	2.38	0.106	<0.005	<0.002	0.14	0.41	<0.001	0.012	0.55	<0.01	0.04	<0.01	0.11	<0.001	0.035
	Median	43.5	0.297	4.8	100.8	9.515	7.445	4.5	22.195	8.5	4.585	0.1315	0.012	0.273	0.365	0.66	0.002	0.018	2.745	0.01	0.085	0.03	0.19	0.004	0.0485
	Max	55	0.408	21.9	133.9	10.57	8.63	10	29.18	22	12.56	0.226	0.037	0.685	0.43	0.9	0.004	0.028	4.02	0.14	0.3	0.3	0.61	0.078	0.115
	Above Guideline	-	-	-	3	-	1	-	-	-	0	-	-	-	-	10	-	0	-	-	-	-	-	-	-
	Below Guideline	-	-	-	1	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N57	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	30	0.179	1.1	82.3	6.83	7.22	<1	14.32	7	0.73	0.096	<0.005	0.084	0.21	0.4	<0.001	<0.005	0.58	<0.01	<0.01	<0.01	0.05	<0.001	0.012
	Median	36.5	0.2915	4.3	102.5	9.53	7.38	3	22.116	9	2.225	0.1235	<0.005	0.346	0.255	0.605	0.0015	0.0085	2.99	<0.01	0.04	0.035	0.135	0.002	0.0335
	Max	44	0.369	5.7	123.3	10.93	8	4	27.07	24	9.52	0.242	0.018	0.71	0.32	0.96	0.004	0.016	4.3	0.13	0.28	0.24	0.67	0.033	0.061
	Above Guideline	-	-	-	2	-	0	-	-	-	0	-	-	-	-	9	-	0	-	-	-	-	-	-	-
	Below Guideline	-	-	-	1	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N64	n	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
	Min	20	0.143	4.2	96	7.75	7.24	<1	12.18	9	1.09	0.122	<0.005	0.27	0.21	0.52	<0.001	<0.005	1.08	0.01	0.04	0.04	0.13	<0.001	0.028
	Median	39	0.292	4.8	104	9.38	7.6	3	21.604	14	3.64	0.161	0.007	0.386	0.3	0.69	0.002	0.014	3.16	0.04	0.08	0.11	0.31	0.002	0.043
	Max	48	0.383	5.9	122.8	11.37	8.29	5	26.42	25	8.03	0.255	0.053	0.876	0.54	1.4	0.003	0.018	3.95	0.13	0.27	0.25	0.68	0.043	0.063
	Above Guideline	-	-	-	2	-	0	-	-	-	0	-	-	-	-	11	-	0	-	-	-	-	-	-	-
	Below Guideline	-	-	-	0	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N641	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	36	0.177	4.8	97.1	8.16	6.94	<1	13.44	13	2.1	0.162	<0.005	0.211	0.21	0.47	<0.001	0.008	2.77	0.03	0.08	0.07	0.19	0.003	0.016
	Median	44	0.2225	5.4	104.45	9.74	7.515	2.5	18.646	15.5	4.43	0.191	0.009	0.4035	0.29	0.72	0.002	0.014	4.19	0.08	0.155	0.17	0.415	0.01	0.028
	Max	50	0.294	6.1	115.6	11.49	8.07	5	26.12	24	8.9	0.273	0.048	0.643	0.42	1.06	0.008	0.022	5.07	0.16	0.35	0.27	0.6	0.081	0.179
	Above Guideline	-	-	-	3	-	0	-	-	-	0	-	-	-	-	11	-	0	-	-	-	-	-	-	-

		Physicochemical											Nutrients							Metals					
Station Code	Statistic	Total Alkalinity as CaCO3 (mg/L)	Conductivity @25 C - Field (mS/cm)	Dissolved Organic Carbon (mg/L)	Dissolved Oxygen - Field (%Sat)	Dissolved Oxygen - Field (mg/L)	pH - Field	Suspended Solids (mg/L)	Temperature - Field (Deg C)	True Colour at 400nm (PES filter)	Turbidity - Field (NTU)	UV Absorbance @ 254nm	Nitrogen Ammoniacal (mg/L)	Nitrogen Oxidised (mg/L)	Nitrogen TKN (mg/L)	Nitrogen Total (mg/L)	Phosphorus Soluble Reactive (mg/L)	Phosphorus Total (mg/L)	Reactive Silica (mg/L)	Aluminium Filtered (mg/L)	Aluminium Total (mg/L)	Iron Filtered (mg/L)	Iron Total (mg/L)	Manganese Filtered (mg/L)	Manganese Total (mg/L)
	Below Guideline	-	-	-	0	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N67	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	21	0.212	3.7	82.1	6.83	6.68	3	11.6	8	3.18	0.134	<0.005	0.394	0.14	0.64	<0.001	0.012	0.76	<0.01	0.05	0.02	0.19	0.005	0.046
	Median	37	0.3205	4.75	95.8	9.21	7.125	5	21.559	11.5	5.61	0.1555	0.0145	0.619	0.26	0.91	0.001	0.02	3.005	0.025	0.14	0.135	0.425	0.0235	0.0855
	Max	49	0.45	5.2	137.9	10.73	8.16	9	29.98	19	7.18	0.218	0.068	1.63	0.49	1.82	0.006	0.025	4.51	0.1	0.23	0.47	0.85	0.125	0.233
	Above Guideline	-	-	-	2	-	0	-	-	-	0	-	-	-	-	12	-	0	-	-	-	-	-	-	-
	Below Guideline	-	-	-	1	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N75	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	20	0.175	4	80.3	6.54	6.55	<1	12.5	10	1.75	0.135	<0.005	0.306	0.15	0.57	<0.001	0.008	1.31	0.01	0.08	0.07	0.22	0.002	0.043
	Median	35.5	0.2945	4.9	96.4	8.83	7.145	4.5	19.85	14	6.12	0.1795	0.025	0.5545	0.295	0.855	0.002	0.0195	2.685	0.05	0.155	0.23	0.51	0.0235	0.0715
	Max	44	0.373	7	108	10.56	7.47	42	25.7	21	80.77	0.724	0.071	1.52	0.52	1.85	0.006	0.098	3.99	0.48	2.29	0.51	2.49	0.071	0.117
	Above Guideline	-	-	-	0	-	0	-	-	-	1	-	-	-	-	12	-	1	-	-	-	-	-	-	-
	Below Guideline	-	-	-	1	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N85	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	12	0.094	4	78.3	6.51	6.53	<1	12.2	10	1.92	0.127	<0.005	<0.002	0.1	0.22	<0.001	<0.005	1.13	0.01	0.07	0.12	0.27	0.005	0.022
	Median	16.5	0.139	4.35	96.25	8.365	7.23	3	19.3	17	3.81	0.181	0.0085	0.1255	0.22	0.325	0.002	0.0125	2.47	0.06	0.145	0.26	0.52	0.013	0.033
	Max	30	0.198	5.5	103.7	10.92	7.48	11	26.4	22	23.12	0.34	0.046	0.33	0.4	0.73	0.005	0.042	3.38	0.23	0.81	0.43	1.04	0.038	0.116
	Above Guideline	-	-	-	0	-	0	-	-	-	0	-	-	-	-	1	-	0	-	-	-	-	-	-	-
	Below Guideline	-	-	-	2	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N86	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	6	0.067	3.3	97.6	8.5	6.15	<1	9.6	12	0.44	0.108	<0.005	0.084	0.08	0.19	<0.001	<0.005	2.09	0.01	0.03	0.11	0.23	0.004	0.007
	Median	7	0.077	4	100.25	9.58	7.09	<1	17.75	16.5	1.85	0.152	0.005	0.1135	0.13	0.25	0.002	0.005	2.575	0.065	0.11	0.23	0.355	0.008	0.0145
	Max	9	0.084	5.4	103.3	11.44	7.42	2	22.4	22	3.03	0.197	0.018	0.21	0.25	0.46	0.004	0.014	3.28	0.12	0.18	0.31	0.83	0.025	0.078
	Above Guideline	-	-	-	0	-	0	-	-	-	0	-	-	-	-	0	-	0	-	-	-	-	-	-	-
	Below Guideline	-	-	-	0	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N881	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	2	0.067	3.4	97.4	8.43	6.33	<1	10.1	14	0.6	0.128	<0.005	0.047	0.09	0.18	<0.001	<0.005	1.82	<0.01	0.04	0.15	0.33	0.006	0.013
	Median	6	0.077	4.25	99.3	9.59	7.055	<1	18.1	19	1.355	0.1555	0.0095	0.114	0.14	0.23	0.001	0.006	2.505	0.055	0.07	0.255	0.46	0.01	0.0205
	Max	7	0.085	5.5	102.2	11.14	7.27	1	23.7	24	3.47	0.217	0.024	0.171	0.21	0.37	0.002	0.016	3.1	0.2	0.31	0.36	0.68	0.018	0.028
	Above Guideline	-	-	-	0	-	0	-	-	-	0	-	-	-	-	0	-	0	-	-	-	-	-	-	-
	Below Guideline	-	-	-	0	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N92	n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Min	8	0.078	2.5	77.4	7.57	6.43	<1	11.6	8	0.28	0.082	<0.005	<0.002	0.1	0.21	<0.001	0.006	1.1	<0.01	0.02	0.06	0.08	<0.001	0.007
	Median	40	0.202	3.9	100.3	8.685	7.545	1	18.25	14.5	2.68	0.145	<0.005	0.1525	0.225	0.325	0.0015	0.0155	2.64	0.045	0.07	0.16	0.37	0.005	0.017
	Max	72	0.284	6.2	118.2	11.38	8.27	7	24.9	25	17.1	0.307	0.024	0.54	0.38	0.85	0.007	0.034	4.28	0.24	0.6	0.29	0.78	0.025	0.139
	Above Guideline	-	-	-	1	-	0	-	-	-	0	-	-	-	-	3	-	0	-	-	-	-	-	-	-
	Below Guideline	-	-	-	2	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table A45 Downstream of storages – part 2

		Cyanobacteria									Indicator bacteria		
Station Code	Statistic	Chlorophyll-a (ug/L)	Algal Count - Total (cells/mL)	Algal Biovolume - Total (mm3/L)	Algal ASU - Total (ASU/mL)	Algal Count - Cyanobacteria (cells/mL)	Algal Biovolume - Cyanobacteria (mm3/L)	Algal ASU - Cyanobacteria (ASU/mL)	Algal Count - Toxic Cyanobacteria (cells/mL)	Algal Biovolume - Toxic Cyanobacteria (mm3/L)	Clostridium perfringens (cfu/100 mL) or (spores/100mL)	E. coli (orgs/100mL) or (CFU/100mL)	Enterococci (cfu/100ml)
E303	n	12	10	10	10	10	10	10	10	10			
	Min	3.93	11650	0.848	481.9	3130	0.021	46.6	347	0.008			
	Median	6.63	42915	2.3	1536.5	33575	0.2275	376.3	1519.5	0.044			
	Max	11.5	384900	4.04	2624	377900	0.835	1229	11420	0.302			
	Above Guideline	10	-	-	-	-	-	-	-	-			
	Below Guideline	-	-	-	-	-	-	-	-	-			
E851	n	12	4	4	4	4	4	4	4	4			
	Min	1.02	5480	0.941	328	0	0	0	0	0			
	Median	4.55	19725	1.515	510	17025	0.0195	64.06	0	0			
	Max	7.97	160500	3.96	1626	158600	0.087	478.5	0	0			
	Above Guideline	4	-	-	-	-	-	-	-	-			
	Below Guideline	-	-	-	-	-	-	-	-	-			
G0515	n	12	0	0	0	0	0	0	0	0			
	Min	0.3	-	-	-	-	-	-	-	-			
	Median	1.33	-	-	-	-	-	-	-	-			
	Max	1.7	-	-	-	-	-	-	-	-			
	Above Guideline	0	-	-	-	-	-	-	-	-			
	Below Guideline	-	-	-	-	-	-	-	-	-			
N44	n	12	10	10	10	10	10	10	10	10			
	Min	2.08	2470	0.194	152.4	0	0	0	0	0			
	Median	10.355	58620	4.73	2440	50960	0.0715	198.55	0	0			
	Max	20.6	297900	10.29	6763	272200	0.179	868.8	0	0			
	Above Guideline	10	-	-	-	-	-	-	-	-			
	Below Guideline	-	-	-	-	-	-	-	-	-			
N57	n	12	7	7	7	7	7	7	7	7			
	Min	2.06	16720	1.6	1051	4740	0.004	19.9	0	0			
	Median	6.6	28260	4.84	2442	8150	0.02	43.7	0	0			
	Max	12.67	126400	9.28	5070	114300	0.151	419.7	119	0.011			
	Above Guideline	7	-	-	-	-	-	-	-	-			
	Below Guideline	-	-	-	-	-	-	-	-	-			
N64	n	11	7	7	7	7	7	7	7	7			
	Min	1.53	6440	1.44	753.3	1840	0.002	8.67	0	0			
	Median	7.5	25710	4.79	1796	7650	0.011	29.9	0	0			
	Max	23.16	59880	13.83	9453	34510	0.052	143.6	136	0.003			
	Above Guideline	7	-	-	-	-	-	-	-	-			
	Below Guideline	-	-	-	-	-	-	-	-	-			
N641	n	12	3	3	3	3	3	3	3	3			
	Min	0.53	8110	1.99	993.9	3420	0.004	18	0	0			
	Median	3.19	15950	2.74	1782	5240	0.005	19.1	0	0			
	Max	7.76	60870	3.49	2193	41850	0.04	146.5	0	0			
	Above Guideline	3	-	-	-	-	-	-	-	-			
	Below Guideline	-	-	-	-	-	-	-	-	-			
N67	n	12	7	7	7	7	7	7	7	7			
	Min	2.03	19170	0.981	586.7	4460	0.002	16	0	0			
	Median	5.83	28100	2.4	1700	9600	0.023	55.5	0	0			

		Cyanobacteria									Indicator bacteria		
Station Code	Statistic	Chlorophyll-a (ug/L)	Algal Count - Total (cells/mL)	Algal Biovolume - Total (mm3/L)	Algal ASU - Total (ASU/mL)	Algal Count - Cyanobacteria (cells/mL)	Algal Biovolume - Cyanobacteria (mm3/L)	Algal ASU - Cyanobacteria (ASU/mL)	Algal Count - Toxic Cyanobacteria (cells/mL)	Algal Biovolume - Toxic Cyanobacteria (mm3/L)	Clostridium perfringens (cfu/100 mL) or (spores/100mL)	E. coli (orgs/100mL) or (CFU/100mL)	Enterococci (cfu/100ml)
	Max	17.55	142600	10.27	7368	133900	0.235	629.4	204	0.004			
	Above Guideline	7	-	-	-	-	-	-	-	-			
	Below Guideline	-	-	-	-	-	-	-	-	-			
N75	n	12	10	10	10	10	10	10	10	10			
	Min	1.06	4350	0.693	362.1	544	0	1.63	0	0			
	Median	7.25	11785	2.295	1252	4675	0.012	37.5	0	0			
	Max	23.71	104800	11.96	5831	96670	0.639	546	2070	0.505			
	Above Guideline	10	-	-	-	-	-	-	-	-			
	Below Guideline	-	-	-	-	-	-	-	-	-			
N85	n	12	7	7	7	7	7	7	7	7			
	Min	1.18	5100	0.818	410.1	0	0	0	0	0			
	Median	5.24	16380	1.72	1056	13960	0.019	60.9	0	0			
	Max	10.4	176100	2.86	1350	173100	0.141	519.3	0	0			
	Above Guideline	7	-	-	-	-	-	-	-	-			
	Below Guideline	-	-	-	-	-	-	-	-	-			
N86	n	12	0	0	0	0	0	0	0	0	12	12	12
	Min	0.57	-	-	-	-	-	-	-	-	<1	<1	9
	Median	0.845	-	-	-	-	-	-	-	-	1.5	11.5	25.5
	Max	1.91	-	-	-	-	-	-	-	-	5	50	110
	Above Guideline	0	-	-	-	-	-	-	-	-	-	-	-
	Below Guideline	-	-	-	-	-	-	-	-	-	-	-	-
N881	n	12	0	0	0	0	0	0	0	0			
	Min	0.48	-	-	-	-	-	-	-	-			
	Median	0.705	-	-	-	-	-	-	-	-			
	Max	1.5	-	-	-	-	-	-	-	-			
	Above Guideline	0	-	-	-	-	-	-	-	-			
	Below Guideline	-	-	-	-	-	-	-	-	-			
N92	n	12	6	6	6	6	6	6	6	6			
	Min	0.81	4640	0.566	482.9	952	0.001	7.05	0	0			
	Median	5.29	11230	2.235	1218.3	3230	0.006	23.35	0	0			
	Max	14.65	143800	6.01	1898	127000	0.13	451.9	0	0			
	Above Guideline	6	-	-	-	-	-	-	-	-			
	Below Guideline	-	-	-	-	-	-	-	-	-			

Appendix B Incidents

Date	Sub-type	Location	Details	Potential Consequences	Root Cause Analysis	Actions Taken
MAJOR						
December 2024	Supply Agreement	Inlet to Kangaroo Valley WFP	pH at the inlet to Kangaroo Valley WFP was 6.41, which is within the major incident range as per the Water Quality Incident Response Protocol.	Potential to cause pH over runs when applying pH modification to optimise coagulant dose.	Pumped hydro operations resulted in the transfer of water with low pH to Bendeela Pondage during an inflow event in Lake Yarrunga.	Flagged issue with plant operations and Water Planning and Delivery. Plant will consider going offline and running off system storage if inflow event in Lake Yarrunga is occurring. All relevant internal and external stakeholders notified.
March 2025	Supply Agreement	Cascade WFP	Algal ASU at the inlet to Cascade WFP was 2901 ASU/mL, which is within the major incident range as per the Water Quality Incident Response Protocol.	Potential to cause inconvenience to water filtration plant, reducing filter run times	Naturally occurring organisms in waterways.	Treatment process will be managed by Sydney Water. All relevant internal and external stakeholders notified.
March 2025	Pathogens	Avon Picnic Area	*E. coli* at 7 cfu/100 mL and Totl coliforms at 9 cfu/100 mL were detected at the picnic area tap.	Coliforms/*E. coli* can cause gastrointestinal illness but is easily disinfected with chlorine during treatment	Low water usage increases residence time in the reticulation and inadequate flushing. Stripping biofilm.	The picnic area was signposted as "not suitable for drinking". Notified PHU. Confirmation of plant performance, system flushing and follow up sampling required before removing signage.
April 2025	Supply Agreement	Inlet to Kangaroo Valley WFP	Turbidity at the inlet to Kangaroo Valley WFP was 20.2NTU, which is within the major incident range as per the Water Quality Incident Response Protocol.	Potential to cause overload of filters and increases the risk of filter breakthrough.	Pumped hydro operations resulted in the transfer of water with high turbidity to Bendeela Pondage during an inflow event in Lake Yarrunga.	Flagged issue with plant operations and Water Planning and Delivery. Plant will consider going offline and running off system storage if inflow event in Lake Yarrunga is occurring. All relevant internal and external stakeholders notified.
April 2025	Supply Agreement	Inlet to Kangaroo Valley WFP	pH at the inlet to Kangaroo Valley WFP was 6.39, which is within the major incident range as per the Water Quality Incident Response Protocol.	Potential to cause pH over runs when applying pH modification to optimise coagulant dose.	Pumped hydro operations resulted in the transfer of water with low pH being to Bendeela Pondage during an inflow event in Lake Yarrunga.	Flagged issue with plant operations and Water Planning and Delivery. Plant will consider going offline and running off system storage if inflow event in Lake Yarrunga is occurring. All relevant internal and external stakeholders notified.

Date	Sub-type	Location	Details	Potential Consequences	Root Cause Analysis	Actions Taken
April 2025	Supply Agreement	Inlet to Kangaroo Valley WFP	True Colour at the inlet to Kangaroo Valley WFP was 71 CU, which is within the major incident range as per the Water Quality Incident Response Protocol.	Potential to reduce effectiveness of coagulation and with pass through increase THM formation potential risk.	Pumped hydro operations resulted in the transfer of water with high organic loadings into Bendeela Pondage during an inflow event in Lake Yarrunga.	Flagged issue with plant operations and Water Planning and Delivery. Plant will consider going offline and running off system storage if inflow event in Lake Yarrunga is occurring. All relevant internal and external stakeholders notified.
April 2025	Supply Agreement	Inlet to Prospect WFP	Algal ASU at the inlet to Prospect WFP was 1033 ASU/mL, which is within the major incident range as per the Water Quality Incident Response Protocol.	Potential to cause inconvenience to water filtration plant, reducing filter run times	Small number of large ASU phytoplankton were included in the shandy from Prospect Reservoir.	Natural occurring organism and unlikely to be persistent. All relevant internal and external stakeholders notified. No impact to plant operations.
SIGNIFICANT						
October 2024	Critical Control Point	Avon Picnic Area	Turbidity at the picnic area tap was recorded at 7.53 NTU, which is above the critical limit.	Elevated turbidity may indicate inadequate disinfection. Aesthetic issue.	Low water usage increase residence time in the reticulation and inadequate flushing.	The picnic area was signposted as "not suitable for drinking". Notified MTL and advised to arrange a reticulation flush. Informed PHU. Resampling as per the routine schedule.
December 2024	Critical Control Point	Fitzroy Falls Picnic Area	Turbidity at the Fitzroy Falls reservoir was recorded at 3.41 NTU with routine monitoring, which is above the critical limit.	Elevated turbidity may indicate inadequate disinfection. Aesthetic issue. Turbidity at the picnic area tap was <3 NTU.	Elevated turbidity in the reservoir as a result of the routine flushing of the inlet filter for the turbidity meter, as the filters get clogged after each refill.	Notified MTL. Requested to flush the taps before collecting samples. Free chlorine levels at the plant were well maintained. The turbidity level gradually decreased after flushing was completed.
January 2025	Supply Agreement	Wingecarribee Dam	Total Microcystins at the monitoring site closest to the inlet to Wingecarribee WFP was 0.41 ug/L, which is within the significant incident range as per the Water Quality Incident Response Protocol.	Microcystins is a cyanobacterial toxin which may generate adverse health outcomes.	Small to moderate counts of Microcystis sp. and Radiocystis sp. in the Reservoir. Note total is derived by adding individual analogues and non-detections were included artificially raising the total result.	All relevant internal and external stakeholders notified. Cyanotoxin removal technology operational at plant. Database issue on generating total escalated for further investigation.
January 2025	Supply Agreement	Wingecarribee Dam	Total Microcystins at the monitoring site closest to the inlet to Wingecarribee WFP was 0.44 ug/L, which is within the	Microcystins is a cyanobacterial toxin which may generate adverse health outcomes.	Small to moderate counts of Microcystis sp. and Radiocystis sp. in the Reservoir. Note total is derived by adding individual analogues and non-	All relevant internal and external stakeholders notified. Cyanotoxin removal technology operational at plant. Database issue on generating total escalated for further investigation.

Date	Sub-type	Location	Details	Potential Consequences	Root Cause Analysis	Actions Taken
			significant incident range as per the Water Quality Incident Response Protocol.		detections were included artificially raising the total result.	
April 2025	Critical Control Point	Fitzroy Falls Picnic Area	Turbidity at the Fitzroy Falls reservoir was recorded at 5.74 NTU with routine monitoring, which is above the critical limit.	Elevated turbidity may indicate inadequate disinfection. Aesthetic issue. Turbidity at the picnic area tap was <3 NTU.	Due to the regular refills of the reservoir, the velocity of the refills causes wall material to pass into the retic system. Filters become clogged after each refill.	Notified MTL. Requested to flush the taps before collecting samples. The reticulation system was flushed. Free chlorine levels at the plant were well maintained. The turbidity level was recorded <1 NTU with the follow-up sampling.
June 2025	Critical Control Point	Cordeaux Picnic Area	Turbidity at the Cordeaux picnic area tap was recorded at 5.53 NTU, which is above the critical limit.	Elevated turbidity may indicate inadequate disinfection. Aesthetic issue.	Low water usage increase residence time in the reticulation and inadequate flushing.	The picnic area was signposted as "not suitable for drinking". Notified MTL and advised to arrange a reticulation flush. Informed PHU. Resampling as per routine schedule.
June 2025	Critical Control Point	Warragamba Valve House P#1 and #2 (CCP)	Turbidity sensors on both pipelines flatlined. These sensors are CCP measures.	Without a critical control measure, critical control points cannot be operated increasing potential risk to supply.	Both sensors were connected to the same RTU which failed. RTU required rebooting on site.	All relevant internal and external stakeholders notified. Coverage was maintained by in lake and other sensors along the pipeline. Water Monitoring considering auxiliary RTUs to avoid a single point of failure issue.
MINOR						
July 2024	Supply Agreement	Woronora WFP	Total aluminium at the inlet to Woronora WFP was 0.40 mg/L, which is within the minor incident range as per the Water Quality Incident Response Protocol.	Elevated aluminium may pose aesthetic issues (metallic taste)	Elevated aluminium in lake as a result of wet weather inflows	No impacts to treatability confirmed with Sydney Water. All relevant internal and external stakeholders notified.
July 2024	Contamination	Fitzroy Falls Picnic Area	Turbidity at the Fitzroy Falls picnic area tap and reservoir was recorded >1 NTU; within the adjustment range.	Elevated turbidity may indicate inadequate disinfection. Aesthetic issue.	Results were within adjustment range only. Low water usage and inadequate flushing. No *E. coli* or total coliforms were recorded through July.	No impact on the water supply. Notified MTL and requested reticulation to be flushed. Resampling as per the routine schedule.
July 2024	Contamination	Fitzroy Falls Picnic Area	Routine monitoring recorded a turbidity level of 1.6 NTU at the Fitzroy Falls reservoir, which is within the adjustment range.	Elevated turbidity may indicate inadequate disinfection. Aesthetic issue.	Results were within adjustment range only. Online monitoring remained <1 NTU through the month, and free chlorine levels were well maintained within the system. No *E. coli* or total	No impact on the water supply. Notified MTL. Requested samplers to flush the taps before sampling.

Date	Sub-type	Location	Details	Potential Consequences	Root Cause Analysis	Actions Taken
					coliforms were recorded in July. Discrepancy in field measurement.	
July 2024	Contamination	Cordeaux Picnic Area	Routine monitoring recorded a turbidity level of 3.11 NTU at the Cordeaux picnic area tap, which is above the critical limit.	Elevated turbidity may indicate inadequate disinfection. Aesthetic issue.	Low water usage increase residence time in the reticulation and inadequate flushing.	Notified MTL. Advised to arrange a reticulation flush and to adjust the flushing time of the auto-flushing unit if necessary. Resampled.
July 2024	Supply Agreement	Inlet to Wingecarribee WFP	Algal ASU at the inlet to Wingecarribee WFP was 3070 ASU/mL, which is within the minor incident range as per the Water Quality Incident Response Protocol.	Potential to cause inconvenience to water filtration plant, reducing filter run times	Moderate green alga and diatom bloom generated an increase in overall biomass.	Natural occurring organisms and unlikely to generate toxins or aesthetic complaints. All relevant internal and external stakeholders notified. No impact to plant operations.
July 2024	Supply Agreement	Inlet to Prospect WFP	Total hardness at the inlet to Prospect WFP was 29.8 mg/L as $CaCO_3$, which is within the minor incident range as per the Water Quality Incident Response Protocol.	Potential to inconvenience pH modification which in turn can influence coagulation dose rates.	Change in source water characteristic in Warragamba after inflows.	All relevant internal and external stakeholders notified. Plant modified shandy ratios from different source waters to increase hardness.
August 2024	Supply Agreement	Inlet to Prospect WFP	Total hardness at the inlet to Prospect WFP was 25.9 mg/L as $CaCO_3$, which is within the minor incident range as per the Water Quality Incident Response Protocol.	Potential to inconvenience pH modification which in turn can influence coagulation dose rates.	Change in source water characteristic in Warragamba after inflows.	All relevant internal and external stakeholders notified. Plant modified shandy ratios from different source waters to increase hardness.
August 2024	Supply Agreement	Inlet to Prospect WFP	Total alkalinity at the inlet to Prospect WFP was 17 mg/L as $CaCO_3$, which is within the minor incident range as per the Water Quality Incident Response Protocol.	Potential to inconvenience pH modification which in turn can influence coagulation dose rates.	Change in source water characteristic in Warragamba after inflows.	All relevant internal and external stakeholders notified. Plant modified shandy ratios from different source waters to increase alkalinity.
August 2024	Contamination	Cataract Picnic Area	Routine monitoring recorded a free chlorine level of 0.22 mg/L at the dosing reservoir.	Inadequate disinfection.	Auto chlorine dosing system tripped out overnight.	Picnic area was signposted as "not suitable for drinking" during this time. The system was restored, flushed, and dosing resumed in the afternoon

Date	Sub-type	Location	Details	Potential Consequences	Root Cause Analysis	Actions Taken
August 2024	Critical Control Point	Cordeaux Picnic Area	Routine monitoring recorded low free chlorine levels below the critical limit on two occasions.	Inadequate disinfection.	Maintenance work and a power outage at the plant.	Following the reinstatement of power, chlorine levels were recorded >0.5 mg/L. No *E. coli* or total coliforms were recorded in the supply in August.
August 2024	Supply Agreement	Inlet to Prospect WFP	Algal ASU at the inlet to Prospect WFP was 844 ASU/mL, which is within the minor incident range as per the Water Quality Incident Response Protocol.	Potential to cause inconvenience to water filtration plant, reducing filter run times	Small number of large ASU phytoplankton were included in the shandy from Prospect Reservoir.	Natural occurring organism and unlikely to be persistent. All relevant internal and external stakeholders notified. No impact to plant operations.
August 2024	Supply Agreement	Inlet to Wingecarribee WFP	Algal ASU at the inlet to Wingecarribee WFP was 4479 ASU/mL, which is within the minor incident range as per the Water Quality Incident Response Protocol.	Potential to cause inconvenience to water filtration plant, reducing filter run times	Diverse assemblage generated an increase in overall biomass.	Natural occurring organisms and unlikely to generate toxins or aesthetic complaints. All relevant internal and external stakeholders notified. No impact to plant operations.
August 2024	Supply Agreement	Inlet to Wingecarribee WFP	Algal ASU at the inlet to Wingecarribee WFP was 3656 ASU/mL, which is within the minor incident range as per the Water Quality Incident Response Protocol.	Potential to cause inconvenience to water filtration plant, reducing filter run times	Diverse assemblage generated an increase in overall biomass.	Natural occurring organisms and unlikely to generate toxins or aesthetic complaints. All relevant internal and external stakeholders notified. No impact to plant operations.
September 2024	Supply Agreement	Inlet to Prospect WFP	Total hardness at the inlet to Prospect WFP was 25.1 mg/L as $CaCO_3$, which is within the minor incident range as per the Water Quality Incident Response Protocol.	Potential to inconvenience pH modification which in turn can influence coagulation dose rates.	Change in source water characteristic in Warragamba after inflows.	All relevant internal and external stakeholders notified. Plant modified shandy ratios from different source waters to increase hardness.
September 2024	Contamination	Fitzroy Falls Picnic Area	Routine monitoring recorded a turbidity level of 1.92 NTU at the Fitzroy Falls reservoir, which is within the adjustment range.	Elevated turbidity may indicate inadequate disinfection. Aesthetic issue.	Results were within adjustment range only. Discrepancy in field measurements.	No impact on the water supply. Notified MTL. No issues reported at the dosing reservoir. Online monitoring remained <1 NTU through the month, and free chlorine levels were well maintained within the system. Checked the sensor at the plant and WMT sonde.

Date	Sub-type	Location	Details	Potential Consequences	Root Cause Analysis	Actions Taken
October 2024	Critical Control Point	Cataract Picnic Area	Routine monitoring recorded a free chlorine level of 0.06 mg/L at the dosing reservoir, which is below the critical limit.	Inadequate disinfection.	Chlorine auto -dosing system tripping out.	Reset the system and resumed chlorine dosing as normal the following day. The dosing system was serviced, cleaned, and the reticulation system was flushed.
October 2024	Critical Control Point	Cataract Picnic Area	Routine monitoring recorded a free chlorine level of 0.00 mg/L at the dosing reservoir, which is below the critical limit.	Inadequate disinfection.	Instrumental error.	Operators on the day recorded residuals within the operational range (>0.5 mg/L). No issues identified in the dosing plant. A secondary device is used to verify the results and determine if the device needs to be sent for calibration.
October 2024	Contamination	Upper Cordeaux House	Total lead was recorded at 0.01 mg/L at raw water supply to Upper Cordeaux house.	Long term exposure to high concentrations can result in health impacts	An elevated lead level was recorded in the raw water. Three cartridge filters were in place before drinking. Currently, there is no additional treatment for the raw water.	Three 20-micron cartridge filters were in place for drinking water. Lead concentrations in the post-filter samples were recorded at 0.004 mg/L, which is below the ADWG Health guidelines (0.01 mg/L). Advised to change the filters regularly.
October 2024	Supply Agreement	Inlet to Prospect WFP	Total hardness at the inlet to Prospect WFP was 53.6 mg/L as $CaCO_3$, which is within the minor incident range as per the Water Quality Incident Response Protocol.	Potential to inconvenience pH modification which in turn can influence coagulation dose rates.	Further evaluation of source waters suggests this was an analytical error by the laboratories.	All relevant internal and external stakeholders notified. Contract laboratory undertook additional investigations and found one of the analytical devices was biased. Subsequent analyses were assigned to another device.
October - December 2024	Contamination	Cordeaux Picnic Area	Routine sampling recorded recurring minor incidents for free chlorine at the dosing plant on three occasions.	Inadequate disinfection.	Discrepancy in field measurements.	No impact on the water supply. Daily monitoring results are within the targets, and CT well exceeded. Notified MTL. Checked the dosing system for any issues. Requested samplers to check the test methods, instruments and calibration and flush the taps before sampling.
November 2024	Pathogens	Fitzroy Falls Picnic Area	Total coliforms of 300 cfu/100 mL were detected at the picnic area tap.	Coliforms can cause gastrointestinal illness but is easily disinfected with chlorine during treatment.	Naturally occurring organism in waterways.	No impact on the water supply. Nil *E coli* detected at the plant or end tap. SCADA shows turbidity is stable and free chlorine remains within operational targets. Routine monitoring also showed low turbidity and a free chlorine residual >0.5 mg/L at the plant and end tap. Follow up sampling clear for total coliforms.

Date	Sub-type	Location	Details	Potential Consequences	Root Cause Analysis	Actions Taken
November 2024	Critical Control Point	Cataract Picnic Area	Routine monitoring recorded a free chlorine level of 0.00 mg/L at the dosing reservoir, which is below the critical limit.	Inadequate disinfection.	Power outage at the picnic area.	Commenced manual chlorine dosing.
November 2024	Supply Agreement	Inlet to Orchard Hills WFP	Total alkalinity at the inlet to Orchard Hills WFP was 48 mg/L as $CaCO_3$, which is within the minor incident range as per the Water Quality Incident Response Protocol.	Potential to inconvenience pH modification which in turn can influence coagulation dose rates.	Further evaluation of source waters suggests this was an analytical error by the laboratories.	All relevant internal and external stakeholders notified. Contract laboratory undertook additional investigations and found one of the analytical devices was biased. Subsequent analyses were assigned to another device.
November 2024 - February 2025	Contamination	Fitzroy Falls Picnic Area	Routine monitoring at the dosing plant recorded recurring minor incidents for turbidity. Turbidity was recorded at 1.1-1.8 NTU, which is within the adjustment range.	Elevated turbidity may indicate inadequate disinfection. Aesthetic issue.	Results were within adjustment range only. Discrepancy in field measurements and routine flushing of the inlet filter for the turbidity meter caused temporary turbidity spikes.	No impact on the water supply. Notified MTL. No issues reported at the dosing reservoir. Online monitoring remained <1 NTU through the period, and free chlorine levels were well maintained within the system. No E. coli were recorded during the period. Follow-up sampling recorded <1 NTU.
November 2024 - June 2025	Contamination	Fitzroy Falls Picnic Area	Recurring minor incidents for turbidity were recorded at the dosing reservoir. Turbidity were recorded at 1.1 - 2.8 NTU, within the adjustment range.	Elevated turbidity may indicate inadequate disinfection. Aesthetic issue.	Turbidity is below the ADWG aesthetic guideline value. Low water usage increases residence time in the reticulation and inadequate flushing.	No impact on the water supply. Conducted routine flushing of the reticulation system. Follow-up sampling recorded turbidity <1 NTU. Chlorine levels were well maintained, and no issues were reported at the dosing plant. No *E. coli* detected during the period.
December 2024	Supply Agreement	Inlet to Kangaroo Valley WFP	True Colour at the inlet to Kangaroo Valley WFP was 59 CU, which is within the minor incident range as per the Water Quality Incident Response Protocol.	Potential to reduce effectiveness of coagulation and with pass through increase THM formation potential risk.	Water with high organic loadings was drawn into Bendeela Pondage during an inflow event in Lake Yarrunga.	Flagged issue with plant operations and Water Planning and Delivery. Plant will consider going offline and running off system storage if inflow event in Lake Yarrunga is occurring. All relevant internal and external stakeholders notified.
December 2024	Supply Agreement	Inlet to Prospect WFP	Algal ASU at the inlet to Prospect WFP was 544 ASU/mL, which is within the minor incident range as per the Water Quality Incident Response Protocol.	Potential to cause inconvenience to water filtration plant, reducing filter run times	Small number of large ASU phytoplankton were included in the shandy from Prospect Reservoir.	Natural occurring organism and unlikely to be persistent. All relevant internal and external stakeholders notified. No impact to plant operations.

Date	Sub-type	Location	Details	Potential Consequences	Root Cause Analysis	Actions Taken
December 2024	Supply Agreement	Bendeela Pondage	Potentially toxic cyanobacterial biovolume at the inlet to Wingecarribee WFP was 0.293 mm^3/mL, which is within the minor incident range as per the Water Quality Incident Response Protocol.	Potential to generate cyanobacterial toxins and/or taste and odour compounds in finished water.	Moderate increase in total cyanobacterial biomass but not at bloom levels.	Natural occurring organisms and monitoring suggested toxins and/or aesthetic risks were low. All relevant internal and external stakeholders notified. No impact to plant operations.
December 2024	Supply Agreement	Wingecarribee Dam	Potentially toxic cyanobacterial biovolume in Wingecarribee Dam was 0.42 mm^3/mL, which is within the minor incident range as per the Water Quality Incident Response Protocol.	Potential to generate cyanobacterial toxins and/or taste and odour compounds in finished water.	Moderate increase in total cyanobacterial biomass but not at bloom levels.	Natural occurring organisms and monitoring suggested toxins and/or aesthetic risks were low. Results at the inlet to the plant were below threshold. All relevant internal and external stakeholders notified. No impact to plant operations.
December 2024	Supply Agreement	Inlet to Prospect WFP	Algal ASU at the inlet to Prospect WFP was 789 ASU/mL, which is within the minor incident range as per the Water Quality Incident Response Protocol.	Potential to cause inconvenience to water filtration plant, reducing filter run times	Small number of large ASU phytoplankton were included in the shandy from Prospect Reservoir.	Natural occurring organism and unlikely to be persistent. All relevant internal and external stakeholders notified. No impact to plant operations.
December 2024	Supply Agreement	Woronora WFP	Total aluminium at the inlet to Woronora WFP was 0.32 mg/L, which is within the minor incident range as per the Water Quality Incident Response Protocol.	Elevated aluminium may pose aesthetic issues (metallic taste)	Elevated aluminium in lake as a result of wet weather inflows	No impacts to treatability confirmed with Sydney Water. All relevant internal and external stakeholders notified.
December 2024	Pathogens	Cordeaux Picnic Area	Trace total coliform detection at picnic area tap of 1 cfu/100mL.	Coliforms can cause gastrointestinal illness but is easily disinfected with chlorine during treatment.	Naturally occurring organism in waterways.	No impact on the water supply. Follow-up sampling recorded no total coliforms.
January 2025	Supply Agreement	Inlet to Prospect WFP	Algal ASU at the inlet to Prospect WFP was 745 ASU/mL, which is within the minor incident range as per the Water	Potential to cause inconvenience to water filtration plant, reducing filter run times	Small number of large ASU phytoplankton were included in the shandy from Prospect Reservoir.	Natural occurring organism and unlikely to be persistent. All relevant internal and external stakeholders notified. No impact to plant operations.

Date	Sub-type	Location	Details	Potential Consequences	Root Cause Analysis	Actions Taken
			Quality Incident Response Protocol.			
January 2025	Supply Agreement	Inlet to Wingecarribee WFP	Potentially toxic cyanobacterial biovolume at the inlet to Wingecarribee WFP was 0.32 mm^3/mL, which is within the minor incident range as per the Water Quality Incident Response Protocol.	Potential to generate cyanobacterial toxins and/or taste and odour compounds in finished water.	Moderate increase in total cyanobacterial biomass but not at bloom levels.	Natural occurring organisms and monitoring suggested toxins and/or aesthetic risks were low. All relevant internal and external stakeholders notified. No impact to plant operations.
January 2025	Critical Control Point	Inlet to Wingecarribee WFP (CCP)	Turbidity sensor climbed above the adjustment limit of 10NTU and peaked at 18NTU for 8 hours before returning to the operational range.	Without a critical control measure, critical control points cannot be operated increasing potential risk to supply.	Wind event in the reservoir stirred up sediment impacting raw water quality	All relevant internal and external stakeholders notified. Council suggested they were seeing impacts however filter runs times where within specification and no impacts to production.
January 2025	Critical Control Point	Warragamba Valve House P#1 (CCP)	Turbidity sensors on pipeline #1 flatlined. This sensor is a CCP measure.	Without a critical control measure, critical control points cannot be operated increasing potential risk to supply.	Sensor filter was overloaded restricting flow to the sensor and causing the sensor to over read.	All relevant internal and external stakeholders notified. Coverage was maintained by in lake and other sensors along the pipeline. Water Monitoring cleared the sensor filter and line and returned sensor to service.
January 2025	Pathogens	Fitzroy Falls Picnic Area	Sampling at the picnic area tap recorded minor incident for total coliforms on two occasions.	Coliforms can cause gastrointestinal illness but is easily disinfected with chlorine during treatment.	Naturally occurring organism in waterways.	No impact on the water supply. Nil *E coli* detected at the plant or end tap. SCADA shows turbidity is stable and free chlorine remains within operational targets. Routine monitoring also showed low turbidity and a free chlorine residual >0.5 mg/L at the plant and end tap. Follow up sampling clear for total coliforms.
January 2025	Pathogens	Avon Picnic Area	A trace detection for total coliforms was recorded at the picnic area tap at 1 cfu/100 mL.	Coliforms can cause gastrointestinal illness but is easily disinfected with chlorine during treatment.	Naturally occurring organism in waterways.	No impact on the water supply. Notified MTL. No issues reported at the plant, and the system continues to operate as required. Free chlorine levels were maintained well. No *E coli* detected. Follow up sampling clear for total coliforms.
January - February 2025	Contamination	Cataract Picnic Area	Recurring minor incidents for free chlorine were recorded at the dosing reservoir.	Inadequate disinfection.	Break in the lower reticulation pipework.	Pipework repairs scheduled. While the auto-dosing system was operated normally, manual dosing had also commenced to maintain the residuals. The picnic

Date	Sub-type	Location	Details	Potential Consequences	Root Cause Analysis	Actions Taken
						area was signposted as "not suitable for drinking" until repairs were completed. Informed PHU.
February 2025	Supply Agreement	Inlet to Wingecarribee WFP	Algal ASU at the inlet to Wingecarribee WFP was 2751 ASU/mL, which is within the minor incident range as per the Water Quality Incident Response Protocol.	Potential to cause inconvenience to water filtration plant, reducing filter run times	Diverse assemblage generated an increase in overall biomass.	Natural occurring organisms and unlikely to generate toxins or aesthetic complaints. All relevant internal and external stakeholders notified. No impact to plant operations.
February 2025	Supply Agreement	Inlet to Prospect WFP	Algal ASU at the inlet to Prospect WFP was 513 ASU/mL, which is within the minor incident range as per the Water Quality Incident Response Protocol.	Potential to cause inconvenience to water filtration plant, reducing filter run times	Small number of large ASU phytoplankton were included in the shandy from Prospect Reservoir.	Natural occurring organism and unlikely to be persistent. All relevant internal and external stakeholders notified. No impact to plant operations.
February 2025	Supply Agreement	Inlet to Wingecarribee WFP	Algal ASU at the inlet to Wingecarribee WFP was 3110 ASU/mL, which is within the minor incident range as per the Water Quality Incident Response Protocol.	Potential to cause inconvenience to water filtration plant, reducing filter run times	Diverse assemblage generated an increase in overall biomass.	Natural occurring organisms and unlikely to generate toxins or aesthetic complaints. All relevant internal and external stakeholders notified. No impact to plant operations.
February 2025	Supply Agreement	Macarthur WFP	Total hardness as CaCO3 at the inlet to Macarthur WFP was 7.9 mg/L, which is within the minor incident range as per the Water Quality Incident Response Protocol.	Potential to inconvenience treatment at the WFP.	Dilution of calcium and magnesium in all Upper Nepean lakes following wet weather inflows.	Treatment process will be managed by Sydney Water. All relevant internal and external stakeholders notified.
March 2025	Pathogens	Cordeaux Picnic Area	A trace detection for total coliforms was recorded at the picnic area tap at 8 cfu/100 mL.	Coliforms can cause gastrointestinal illness but is easily disinfected with chlorine during treatment.	Naturally occurring organism in waterways.	No impact on the water supply. Notified MTL. No issues reported at the plant and the system continues to operate as required. No *E coli* detected. Follow up sampling clear for total coliforms.
March 2025	Contamination	Cordeaux Picnic Area	Turbidity was recorded at 3.08 NTU at the picnic area tap.	Elevated turbidity may indicate inadequate disinfection. Aesthetic issue.	Low water usage increase residence time in the reticulation and inadequate flushing.	Notified MTL. Advised to flush the reticulation and to adjust the flushing time of the auto-flushing unit if necessary. Resampled.

Date	Sub-type	Location	Details	Potential Consequences	Root Cause Analysis	Actions Taken
March 2025	Critical Control Point	Avon Picnic Area	Turbidity was recorded at 3.26 NTU at the picnic area tap, which is above the critical limit.	Elevated turbidity may indicate inadequate disinfection. Aesthetic issue.	Picnic area was closed during this time, which increased residence time in the reticulation.	Picnic area was already signposted as not suitable for drinking due to positive *E. coli* detection. Notified MTL. Advised to flush the reticulation. Notified PHU.
March 2025	Critical Control Point	Avon Picnic Area	Routine monitoring recorded a free chlorine level of 0.21 mg/L at the dosing reservoir.	Inadequate disinfection.	Failure in chlorine analyser mixing pump. Site was on manual dosing.	Picnic area was already signposted as not suitable for drinking due to positive *E. coli* detection. Notified MTL. Advised to flush the reticulation and closely monitor the chlorine levels until dosing pump repairs completed.
March 2025	Supply Agreement	Inlet to Kangaroo Valley WFP	Algal ASU at the inlet to Kangaroo Valley WFP was 4028 ASU/mL, which is within the minor incident range as per the Water Quality Incident Response Protocol.	Potential to cause inconvenience to water filtration plant, reducing filter run times	Diverse assemblage generated an increase in overall biomass due to changes in hydro operations increasing residence time.	Natural occurring organisms and unlikely to generate toxins or aesthetic complaints. All relevant internal and external stakeholders notified. No impact to plant operations.
March 2025	Supply Agreement	Wingecarribee Dam	Potentially toxic cyanobacterial biovolume in Wingecarribee Dam was 0.21 mm^3/mL, which is within the minor incident range as per the Water Quality Incident Response Protocol.	Potential to generate cyanobacterial toxins and/or taste and odour compounds in finished water.	Moderate increase in total cyanobacterial biomass but not at bloom levels.	Natural occurring organisms and monitoring suggested toxins and/or aesthetic risks were low. Results at the inlet to the plant were below threshold. All relevant internal and external stakeholders notified. No impact to plant operations.
March 2025	Supply Agreement	Inlet to Wingecarribee WFP	Potentially toxic cyanobacterial biovolume at the inlet to Wingecarribee WFP was 0.21 mm^3/mL, which is within the minor incident range as per the Water Quality Incident Response Protocol.	Potential to generate cyanobacterial toxins and/or taste and odour compounds in finished water.	Moderate increase in total cyanobacterial biomass but not at bloom levels.	Natural occurring organisms and monitoring suggested toxins and/or aesthetic risks were low. All relevant internal and external stakeholders notified. No impact to plant operations.
March 2025	Supply Agreement	Inlet to Kangaroo Valley WFP	Potentially toxic cyanobacterial biovolume at the inlet to Kangaroo Valley WFP was 0.36 mm^3/mL, which is within the minor incident range as per the Water Quality Incident Response Protocol.	Potential to generate cyanobacterial toxins and/or taste and odour compounds in finished water.	Moderate increase in total cyanobacterial biomass but not at bloom levels. Increased residence time caused by planned outage in transfers in and out of the Pondage promoted algal growth.	Natural occurring organisms and monitoring suggested toxins and/or aesthetic risks were low. All relevant internal and external stakeholders notified. No impact to plant operations.

Date	Sub-type	Location	Details	Potential Consequences	Root Cause Analysis	Actions Taken
March - May 2025	Pathogens	Fitzroy Falls Picnic Area	Sampling at the picnic area tap recorded recurring minor incidents for total coliforms. In March, there were two incidents; in April, two incidents; in May, two incidents; and in June, only one incident was recorded.	Coliforms can cause gastrointestinal illness but is easily disinfected with chlorine during treatment.	Naturally occurring organism in waterways.	No impact on the water supply. Nil *E coli* detected at the plant or end tap. SCADA shows turbidity is stable and free chlorine remains within operational targets. Routine monitoring also showed low turbidity and a free chlorine residual >0.5 mg/L at the plant and end tap. Follow up sampling clear for total coliforms.
April 2025	Supply Agreement	Inlet to Kangaroo Valley WFP	Total iron at the inlet to Kangaroo Valley WFP was 0.88 mg/L, which is within the minor incident range as per the Water Quality Incident Response Protocol.	Potential to overload filters and increases the risk of filter breakthrough. Subsequent drinking water impacts would be aesthetic.	Water with elevated iron was drawn into Bendeela Pondage during an inflow event in Lake Yarrunga.	Flagged issue with plant operations and Water Planning and Delivery. Plant will consider going offline and running off system storage if inflow event in Lake Yarrunga is occurring. All relevant internal and external stakeholders notified.
April 2025	Supply Agreement	Inlet to Kangaroo Valley WFP	*E. coli* at the inlet to Kangaroo Valley WFP was 810 cfu/100mL, which is within the minor incident range as per the Water Quality Incident Response Protocol.	Potential to increase risk to drinking water if plant disinfection targets are not met. Increases risk for other pathogens that are not routinely monitored.	Water with high bacterial counts was drawn into Bendeela Pondage during an inflow event in Lake Yarrunga.	Flagged issue with plant operations and Water Planning and Delivery. Plant will consider going offline and running off system storage if inflow event in Lake Yarrunga is occurring. All relevant internal and external stakeholders notified.
April 2025	Supply Agreement	Wingecarribee Dam	Potentially toxic cyanobacterial biovolume in Wingecarribee Dam was 0.25 mm^3/mL, which is within the minor incident range as per the Water Quality Incident Response Protocol.	Potential to generate cyanobacterial toxins and/or taste and odour compounds in finished water.	Moderate increase in total cyanobacterial biomass but not at bloom levels.	Natural occurring organisms and monitoring suggested toxins and/or aesthetic risks were low. Results at the inlet to the plant were below threshold. All relevant internal and external stakeholders notified. No impact to plant operations.
April 2025	Supply Agreement	Inlet to Wingecarribee WFP	Potentially toxic cyanobacterial biovolume at the inlet to Wingecarribee WFP was 0.26 mm^3/mL, which is within the minor incident range as per the Water Quality Incident Response Protocol.	Potential to generate cyanobacterial toxins and/or taste and odour compounds in finished water.	Moderate increase in total cyanobacterial biomass but not at bloom levels.	Natural occurring organisms and monitoring suggested toxins and/or aesthetic risks were low. All relevant internal and external stakeholders notified. No impact to plant operations.

Date	Sub-type	Location	Details	Potential Consequences	Root Cause Analysis	Actions Taken
April 2025	Supply Agreement	Macarthur WFP	Total hardness as CaCO3 at the inlet to Macarthur WFP was 8.8 mg/L, which is within the minor incident range as per the Water Quality Incident Response Protocol.	Potential to inconvenience treatment at the WFP.	Dilution of calcium and magnesium in all Upper Nepean lakes following wet weather inflows.	Treatment process will be managed by Sydney Water. All relevant internal and external stakeholders notified.
April 2025	Contamination	Fitzroy Falls Picnic Area	Routine monitoring recorded a turbidity level of 1.1 NTU at the Fitzroy Falls reservoir, which is within the adjustment range.	Elevated turbidity may indicate inadequate disinfection. Aesthetic issue.	Power issues at the dosing plant.	SCADA monitoring recorded turbidity levels >1 NTU. Cleaned the turbidity sensor and pipework. New water was delivered, which resulted in a gradual decline in turbidity.
April- June 2025	Critical Control Point	Cataract Picnic Area	Routine monitoring recorded a free chlorine level of 0.01 mg/L at the dosing reservoir, which is below the critical limit.	Inadequate disinfection.	Fault in chlorine dosing pumps and Instruments.	Picnic area was already signposted as not suitable for drinking due to elevated turbidity results. Commenced manual chlorine dosing. Informed PHU. The instrument electricians and the specialist contractor visited the site to inspect the dosing pumps.
May 2025	Supply Agreement	Inlet to Kangaroo Valley WFP	Algal ASU at the inlet to Kangaroo Valley WFP was 3313 ASU/mL, which is within the minor incident range as per the Water Quality Incident Response Protocol.	Potential to cause inconvenience to water filtration plant, reducing filter run times	Diverse assemblage generated an increase in overall biomass due to changes in hydro operations increasing residence time.	Natural occurring organisms and unlikely to generate toxins or aesthetic complaints. All relevant internal and external stakeholders notified. No impact to plant operations.
May 2025	Supply Agreement	Inlet to Prospect WFP	Algal ASU at the inlet to Prospect WFP was 605 ASU/mL, which is within the minor incident range as per the Water Quality Incident Response Protocol.	Potential to cause inconvenience to water filtration plant, reducing filter run times	Small number of large ASU phytoplankton were included in the shandy from Prospect Reservoir.	Natural occurring organism and unlikely to be persistent. All relevant internal and external stakeholders notified. No impact to plant operations.
May 2025	Supply Agreement	Wingecarribee Dam	Potentially toxic cyanobacterial biovolume in Wingecarribee Dam was 0.24 mm^3/mL, which is within the minor incident range as per the Water Quality Incident Response Protocol.	Potential to generate cyanobacterial toxins and/or taste and odour compounds in finished water.	Moderate increase in total cyanobacterial biomass but not at bloom levels.	Natural occurring organisms and monitoring suggested toxins and/or aesthetic risks were low. Results at the inlet to the plant were below threshold. All relevant internal and external stakeholders notified. No impact to plant operations.

Date	Sub-type	Location	Details	Potential Consequences	Root Cause Analysis	Actions Taken
May 2025	Supply Agreement	Upper Canal @ Prospect WFP	*E. coli* at the stilling weir in the Upper Canal was 1600 cfu/100mL, which is within the minor incident range as per the Water Quality Incident Response Protocol.	Potential to increase risk to drinking water if plant disinfection targets are not met. Increases risk for other pathogens that are not routinely monitored.	Sample was collected immediately after a moderate rainfall event where overland ingress to the canal may have occurred.	All relevant internal and external stakeholders notified. Upper Canal was offline from direct supply and diverted to Prospect Reservoir. Additional monitoring implemented to confirm availability for direct supply.
May 2025	Supply Agreement	Nepean WFP	E. coli at the inlet to Nepean WFP was 1200 CFU/100mL, which is within the minor incident range as per the Water Quality Incident Response Protocol.	Gastrointestinal illness if not disinfected with chlorine during treatment.	Elevated levels of indicator bacteria in lake as a result of wet weather inflows	Sydney Water confirmed treatment disinfection targets were met. All relevant internal and external stakeholders notified.
June 2025	Supply Agreement	Inlet to Wingecarribee WFP	Potentially toxic cyanobacterial biovolume at the inlet to Wingecarribee WFP was 0.2 mm^3/mL, which is within the minor incident range as per the Water Quality Incident Response Protocol.	Potential to generate cyanobacterial toxins and/or taste and odour compounds in finished water.	Moderate increase in total cyanobacterial biomass but not at bloom levels.	Natural occurring organisms and monitoring suggested toxins and/or aesthetic risks were low. All relevant internal and external stakeholders notified. No impact to plant operations.
June 2025	Supply Agreement	Inlet to Prospect WFP	Algal ASU at the inlet to Prospect WFP was 559 ASU/mL, which is within the minor incident range as per the Water Quality Incident Response Protocol.	Potential to cause inconvenience to water filtration plant, reducing filter run times	Small number of large ASU phytoplankton were included in the shandy from Prospect Reservoir.	Natural occurring organism and unlikely to be persistent. All relevant internal and external stakeholders notified. No impact to plant operations.
June 2025	Supply Agreement	Macarthur WFP	Total hardness as CaCO3 at the inlet to Macarthur WFP was 7.4 mg/L, which is within the minor incident range as per the Water Quality Incident Response Protocol.	Potential to inconvenience treatment at the WFP.	Dilution of calcium and magnesium in all Upper Nepean lakes following wet weather inflows.	Treatment process will be managed by Sydney Water. All relevant internal and external stakeholders notified.
June 2025	Pathogens	Avon Picnic Area	Total coliforms of 160 cfu/100 mL were detected at the picnic area tap.	Coliforms can cause gastrointestinal illness but is	Naturally occurring organism in waterways.	Notified MTL. No issues reported and the system continues to operate as required. No E coli detected.

Date	Sub-type	Location	Details	Potential Consequences	Root Cause Analysis	Actions Taken
				easily disinfected with chlorine during treatment.		Follow up sampling clear for total coliforms. Informed PHU.