SHIRE OF FLINDERS

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Drinking Water Quality Management Plan Annual Report 2024-2025

FLINDERS SHIRE COUNCIL

SPID: 51

This report has been prepared in accordance with the Guideline for the preparation, review and audit of drinking water quality management plans Version 3, 1 October 2022.

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Date	Report	Author	Reviewed By	Authorised by CEO
15/12/25	DWQMP Annual Report FY 2024-25	*AM Coordinator* Rebecca Rayner	*Director of Engineering* Misenka Duong	*Acting Chief Executive Officer* Melanie Wicks

1. Introduction

This is the Annual Drinking Water Quality Management Plan (DWQMP) report for Flinders Shire Council (FSC) for the 2024-2025 financial year. FSC is a registered drinking water service provider with the Service Provider Identification (SPID) number 51. FSC is operating under an approved DWQMP to ensure the consistent supply of safe quality drinking water to protect public health. This is done through proactive identification and minimisation of public health related risks associated with drinking water. This DWQMP report includes:

- Information about compliance which the regulator requires under a report requirement
- The actions taken to implement the DWQMP
- The outcome of any review of the DWQMP in the financial year and how Council has addressed matters raised in the review
- The outcome of any audit of the DWQMP in the financial year and a summary of its findings and any recommendations
- Details of information given to the regulator under sections 102 (notice of noncompliance with water quality criteria) and 102A (notice of prescribed incidents) in the financial year
- Details of compliance with 'water quality criteria' for drinking water
- Details of any complaints to Council about Council's drinking water service

This report is submitted to the Regulator to fulfil Council's regulatory requirement and is also made available to our customers through our website or for inspection upon request at the Council office.

Table 1 - Summary of Scheme/s Operated

Scheme	*Population Served*	*Towns supplied*	*Water Source*	*Treatment processes*
Hughenden (Potable Water Scheme)	1,170	Hughenden	Sub artesian Bores (4 bores total)	Disinfection by Sodium Hypochlorite
Prairie (Potable Water Scheme)	70	Prairie	Sub artesian Bores (2 bores total)	Disinfection by Sodium Hypochlorite
Torrens Creek (Potable Water Scheme)	31	Torrens Creek	Sub artesian Bore (1 bore total)	Clarification, Direct Filtration & Chlorination with Sodium Hypochlorite
		Emergency Supply - Torrens Creek	Emergency Supply - River Well Spear Pump	
Stamford (Non-Potable Water Scheme)	5	Stamford	Sub artesian Bore (1 bore total)	NON-POTABLE Scheme

2. DWQMP Implementation

Implementation of the DWQMP was carried out throughout the 2024 - 2025 financial year.

An amendment application for Revision 12 of FSC's DWQMP was submitted to the regulator on the 29th of November 2024. On the 6th of March 2025, the regulator issued an "Information Notice for the Decision to approve an amendment of the Flinders Shire Council's approved Drinking Water Quality Management Plan".

Water & sewer team meetings

The water and sewer team meets fortnightly to discuss pertinent items to the function of providing safe and reliable services. Regular agenda items include the status of projects, training progression, results from operational and verification monitoring and many other topics. Attendees include the Director of Engineering, Asset Management Coordinator, Senior Operational Works Coordinator and Water & Sewerage Supervisor. Meetings are also attended by relevant stakeholders as required, including IT, workplace health and safety etc.

Progress in implementing the risk management improvement program

Flinders Shire Council's DWQMP includes a Risk Management Improvement Program (RMIP) which aims to manage any unacceptable residual risks identified by the hazard/risk assessment and improve parts of the plan where deficiencies in information did not allow the criteria to be completely and accurately addressed. The RMIP identifies areas where Council needs to implement changes to manage hazards/risks and uncertainties. The program outlines interim, short-term, and long-term actions for Council to implement to manage the identified hazards/risks and uncertainties.

The actions undertaken to implement the risk management improvement program are given in Appendix A.

Operational and Verification Monitoring Program

Operational and Verification monitoring programs have changed in line with the amendment application submitted to the regulator on the 29th of November 2024. Samples for verification monitoring of e.coli are analysed internally at Council's laboratory and 10% blinds are sent to Townsville City Council laboratory as scheduled. All other analysis for verification monitoring is sent away to a combination of Queensland Health Forensic & Scientific Services in Brisbane and the Townsville City Council Laboratory.

3. Compliance with Water Quality Criteria

A summary of water quality characteristics for each scheme is contained in Appendix B. Numbers listed under the "samples required under the DWQMP" have been calculated from the DWQMP approved under the "Information Notice for the Decision" issued to FSC by the regulator on the 6th of March 2025. Discrepancies in the samples required and actual samples collected are a result of the change in operational and verification monitoring programs from Version 7 to Version 12 of Council's DWQMP.

Chemical

All samples taken during this financial year met the recommended health values in the Australian Drinking Water Guidelines, except for the incidents reported to the regulator, as detailed in the "Notifications to the Regulator" section below.

E.Coli

A count of ~1 cfu/100mL of e.coli was detected in the Hughenden potable water supply scheme in the 2024-25 financial year. Details of the incident can be found in Section 4 below "Notifications to the Regulator" under DWI-51-24-11532.

4. Notifications to the Regulator

Table 2 – Incidents/Events Reported to The Regulator

Incident / Event date	Scheme / location	Parameter / issue	Immediate corrective actions and Preventive actions
05/09/2024	Torrens Creek	Interim Health Guideline Exceedance - Chlorate Refer to DWI-51-24-11245	Immediate: Suspected chlorate contamination is from aged sodium hypochlorite. On 05/09/2024, sodium hypochlorite was purged from the onsite chlorination tank at the Torrens Creek Water Treatment Plant and the tank was refilled with fresh chlorine. The town mains were then flushed in several locations to draw fresh water into the reticulation. Preventive: Sodium Hypochlorite supply has been changed to a 20L drum which is exchanged weekly during routine checks. Sodium hypochlorite levels are monitored as part of on-site checks conducted daily. This procedure ensures the supply of fresh chlorine in the interim until Council implements its chlorate management procedure.
29/11/2024	Hughenden	Health Guideline Exceedance – e.coli Refer to DWI-51-24-11532	Immediate: Daily hand dosing commenced on the 29th of November with calcium hypochlorite tablets to maintain chlorine residual. A boil water alert was issued to the township of Hughenden to provide immediate protection of Public Health. Due to the time constraints with available

			delivery methods, resampling was conducted the following Monday 2nd December. The resample taken from sample point "H-ROBERT" and sent to Townsville City Council Lab returned a result of <1mg/L of e.coli. Preventive: Capital funds were prioritised for upgrade of the existing chlorine dosing system. Upgrades were completed in March of 2025 and the new system consists of upsized dosing pumps, dual sodium hypochlorite storage tanks, replacement analyser (free chlorine & pH) on the primary disinfection point & integration of the dosing system into Council's new SCADA platform. In addition to the dosing system upgrade, works were also undertaken to improve the reliability of the communication network to ensure SCADA alarms are transmitted consistently. The upgrades have allowed for greater control of the chlorine dosing system and improved alarm notifications.
11/04/2025	Hughenden	Interim Health Guideline Exceedance - Chlorate Refer to DWI-51-25-12002	Immediate: The town mains were flushed in the locations where high readings were present. Suspected chlorate contamination is from aged sodium hypochlorite. Sodium hypochlorite was purged from the onsite chlorination tanks and refilled with fresh chlorine. Preventive: Sodium Hypochlorite 1000L pod storage has been changed to the dosing room to ensure the pods are kept out of direct sunlight and within a cooled room. This measure will slow the degradation of sodium hypochlorite, and reduce the presence of chlorates. Council is in the process of implementing its chlorate management procedure.

5. Customer Complaints Related to Water Quality

This section details complaints received by the service provider regarding drinking water quality.

Table 3 - Customer Complaints About Water Quality

Scheme	Suspected Illness	Dirty Water	Taste and Odour	Other	TOTAL
Hughenden	0	13	0	0	**13**
Torrens Creek	0	0	0	1	**1**
Prairie	1	0	0	0	**1**
Stamford	0	0	0	0	**0**
TOTAL	**1**	**13**	**0**	**1**	**15**

6. DWQMP Review

The next regular review of Flinders Shire Council's DWQMP is due on the 31st of May 2026.

7. DWQMP Audit

The next regular audit of Flinders Shire Council's DWQMP is due on the 30th of November 2025.

Appendix A: Risk Management Improvement Plan Implementation Status

2024-0022 FSC DWQMP Review

15 Dec 2025

Risk Management Improvement Plan - Plan Actions

			Proposed Improvement Measures							Resourcing			
No.	Observation	Gap or Comment	Interim	Target Date	Short-Term	Target Date	Long-Term	Target Date	Budget	Assigned to	Group	Infra?	Actions Taken
2024-095	There is no DWQM Policy	Council should have a policy	Produce a draft policy for the 2023 DWQMP review	2024	Obtain council endorsement for the policy.	2025			Internal Wages	Asset Management Coordinator	Procedural		Drinking Water Quality Management Policy adopted by Council at the March general Council meeting.
2024-096	From 2021 External Audit - 2.1b Construct a flow diagram of the water supply system from catchment to consumer.	Recommendation – update Figure 4.2 to include new automatic chlorine dosing facility at Hughenden reservoir	Completed	Closed									
2024-097	From 2021 External Audit - 2.1c Assemble pertinent information and document key characteristics of the water supply system to be considered.	Recommendation – update the DWQMP to include: – Upgraded Figure 4.2 of DWQMP to include new 4.3 ML reservoir and associated pipework at Hughenden. Also include details of new automatic chlorine dosing system in this figure. Recommend utilisation of As-Constructed drawings when available (noting project is being completed at time of Audit) – Upgrade Figure 4.4 of DWQMP to include the addition	Completed	Closed									
2024-098	From 2021 External Audit - 2.3b Identify and document hazards, sources and hazardous events for each component of the water supply system.	Recommendation – update Table 6.7 to include consideration of new chlorination facility at Hughenden.	Completed	Closed									
2024-099	From 2021 External Audit - 2.3c Estimate the level of risk for each identified hazard or hazardous event.	Recommendation – update Table 6.7 to include consideration of new chlorination facility at Hughenden.	Completed	Closed									
2024-100	From 2021 External Audit - 2.3d Evaluate the major sources of uncertainty associated with each hazard and hazardous event and consider actions to reduce	Recommendation – update Table 6.7 to include consideration of new chlorination facility at Hughenden.	Completed	Closed									
2024-101	From 2021 External Audit - 2.3e Determine significant risks and document priorities for risk management.	Recommendation – update IP-5 Chlorination at Hughenden as this has been recently completed Update IP13 – this has been completed successfully by Council. There also seems to be two sets of IP-14 and IP-15s in Table 9.1. Recommended to align these improvement actions with those stated in	Completed - added to the 2024 DWQMP	Closed									
2024-102	From 2021 External Audit - 3.1a Identify existing preventive measures from catchment to consumer for each significant hazard or hazardous event and estimate the residual risk	Recommendation – update Table 6.7 to include new automatic chlorination facility at Hughenden. Mains break SWMS should include chlorine testing and reporting to EHO. Noting that Council indicated that a new chlorine residual analyser was being procured at Prairie, DWQMP Table 6.7 needs to be updated to reflect manual chlorine dosing. It was discussed at the audit that Council only manually dose to the primary tank at Prairie and the blending of water from the two support tanks by the primary tank on the way out of the site is relied upon for introduction of chlorine residual from these two support tanks. It was recommended that the equivalent number of chlorine tablets be distributed amongst all three tanks to provide disinfection in all storages. A change of this dosing regime will require increased monitoring of resultant chlorine residual to the network to optimize dosing configuration in this regard. It is recommended that Council consider an improved way of sealing the bore heads to	Completed - added to the 2024 DWQMP	Closed									
2024-103	From 2021 External Audit - 3.1b Evaluate alternative or additional preventive measures where improvement is required.	Recommendation – update Table 6.7 and 9.1 to fix up discrepancies and update if actions are completed.	Action added to the 2024 DWQMP in another action item	Closed									
2024-104	From 2021 External Audit - 4.1b Document all procedures and compile into an operations manual.	Recommendation – Need to compile O&M Manual for new Torrens Creek WTP.	Part of the major update in 2024	2024									
2024-105	From 2021 External Audit - 4.2a Develop monitoring protocols for operational performance of the water supply system, including the selection of operational parameters and criteria, and the routine analysis of	Recommendation – include in section 11.2 Council's method of data analysis and frequency.	Part of the major update in 2024	Closed									
2024-106	From 2021 External Audit - 4.5b Establish documented procedures for evaluating chemicals, materials and suppliers.	Recommendation – establish a procedure to ensure chemicals and materials from suppliers are fit for purpose and what was	Part of the major update in 2024	2025									
2024-107	From 2021 External Audit - 5.1b Establish and document a sampling plan for each characteristic, including the location and frequency of sampling.	Recommendation – confirm documentation of sampling frequencies, including if correct Table references.	Part of the major update in 2024	Closed									
2024-108	From 2021 External Audit - 6.2b Train employees and regularly test emergency response plans.	Recommendation – complete emergency response training as soon as practicable and resume training program to incorporate COVID disruptions.	Part of the major update in 2024	2025									
2024-109	From 2021 External Audit - 7.2a Ensure that employees, including contractors, maintain the appropriate experience and qualifications.	Recommendation – Council should ensure relevant training is completed now that the chlorine system at Hughenden is successfully completed.	Develop an approved equipment and materials list.	2025									

Risk Management Improvement Plan - Plan Actions

			Proposed Improvement Measures							Resourcing			
No.	Observation	Gap or Comment	Interim	Target Date	Short-Term	Target Date	Long-Term	Target Date	Budget	Assigned to	Group	Infra?	Actions Taken
2024-110	From RA Report - Consistent technology for new infrastructure particularly filtration and disinfection units should be considered particularly in terms of training and familiarisation.	The longevity and spare parts availability of each technology will need to be considered;	Continue with operational discussions such as toolbox talks to ensure actions are properly undertaken.	2025	Develop standardised specifications.	2027			50,000	Director of Engineering	O&M		
2024-111	From RA Report - The HBT LRV scores relating to an installed solution assume that the facilities are effectively operated. Where a score of say 0 has been achieved, the client should consider a higher score to allow for any operational issues such as attendance.	This may be overcome through a number of operational management improvements such as automated control systems and remote access.	Continue with operational discussions such as toolbox talks to ensure actions are properly undertaken.	2025	Actions allocated in the risk assessment for specific automation				Internal Wages	Asset Management Coordinator	Procedural		
2024-112	From RA Report - It is particularly important for existing and future water treatment plant unit processes that the incoming raw water operating limits are established to achieve a treated water turbidity << 1 NTU as per the HBT credits table for filters.	Plant may have sub-optimal filter performance	Write 3 new plans - Consultant engaged.	2025	Actions allocated in the risk assessment for specific automation				Internal Wages	Asset Management Coordinator	Procedural		
2024-113	From RA Report - Disinfection by products are of particular concern.	3 new management plans/procedures need to be written to overcome or to minimise this issue. These are the flushing procedure, chlorate management procedure and THM management procedure. These are inter-related and are	This DWQMP addresses this concern	2024					9,000	Asset Management Coordinator	Procedural		Council engaged a consultant in late November 2025 to create a procedural framework/Drinking Water Quality Manual. Work to complete this manual is anticipated to be completed in early 2026.
2024-114	From RA Report - A new DWQMP. This includes full adherence to the latest state guidelines to ensure the objectives of the ADWG are achieved. This plan, done correctly, will provide ongoing direction and improvement		Create procedures for high risk issues including chlorates, BGA, and flushing - risk assigned above	2024					Funds already allocated	Asset Management Coordinator	O&M		See response in item 2024-113
2024-115	From RA Report - Prepare a quality assurance program in the form of a Drinking Water Management System.	Whilst not required in Queensland, this aligns with regulated states. This system is essential in providing a framework of instructional information that will enable consistently performed activities to ensure that appropriate daily management occurs, and effective responsiveness during abnormal events. It is suggested that the NSW Guidelines for Drinking Water Management Systems, 2012, be used for	Engage consultant to undertake a gap analysis.	2025	Consider a new consolidated system to manage procedures. This includes the multiple gaps found during the risk assessments where procedures are lacking.	2025			20,000	Asset Management Coordinator	Procedural		See response in item 2024-113
2024-116	From RA Report - The writing of new and updated procedures which will be managed by a quality assurance system;	A review of the procedural framework in needed to ensure gaps are identified and closed.	Identify a list of needed improvements.	2025	Engage consultant to produce a starting set of procedures to close out high risk areas.	2026			30,000	Asset Management Coordinator	Procedural		See response in item 2024-113
2024-117	From RA Report - An updated and extended data management system such as SWIMLocal which again, will be managed by a quality assurance system;	the SWIMLocal system has been identified as needing improvements.	Identify training needs	2025	Obtain a quote from QldWater or undertake improvements internally in alignment with the latest DWQMP.	2026			10,000	Asset Management Coordinator	Procedural		Council engaged a consultant in late November 2025 to conduct an update on the SWIMLocal Operations system.
2024-118	From RA Report - Training needs are assessed and implemented.	It is important Certificate III certification is held for at least 3 personnel so that backup personnel can step into roles if and when needed. Certificate II qualifications should also be held by others. WIOA training will also be of benefit.	Update the monitoring programs in the latest DWQMP.	2024	Set out a program for training.	2025	Undertake training - Funding may be avaialble through the QWRAP Program.	2025	20,000	Asset Management Coordinator	HR – Training		Training matrix in development. Gap analysis completed as part of NW-QWRAP project. Cert III in WIO started in October 2025, 3 employees enrolled. Cert IV in WIO earmarked to begin early 2026 for two employees.
2024-119	From RA Report - The operational and verification monitoring plan is reviewed and clear	A minor degree of ambiguity is present.	Present the latest DWQMP and Risk Assessment to Councillors and management.	2024	Conduct training of all water personnel on the new DWQMP. This may reequire a specialist to perform the training.	2025			14,000	Asset Management Coordinator	HR – Training		Training in the new DWQMP is ongoing, Council will consider engaging the consultant writing the Drinking Water Quality Manual to conduct training of staff in the updated procedures and work instructions.
2024-120	From RA Report - The water capital and operational budget planning process reflect the above medium to long-term aspirations	The RMIP is not just a wish list and is supported by management and council.	Check the website to look for any obvious gaps, and arrange for that information to be vetted and uploaded.	2025	Incorporate DWQM funding into the budget planning process.	2026	Obtain funding and commence an implementation monitoring program	2027	Internal Wages	Director of Engineering	Council		See response in item 2024-113
2024-121	The council testing machine is currently located at the STP which is currently the only space available, and the machine needs to be shared between the sewerage and water sections.	Investigate whether funding can be made available for a Tecta machine and if it can be housed at the WTP.	Investigate whether funding can be made available for a Tecta machine and if it can be housed at the WTP.	2024	Apply for funding to purchase a Tecta machine and a demountable building. Create procedure to ensure that the Quanti-Tray sealing equipment and the lab is regualrly cleaned.	2025			82,000	Asset Management Coordinator	Laboratory	Yes	Budget has been allocated for a consultant to undertake a project brief and technical requirements brief for the design and construction of a new water treatment plant in Hughenden, which will include a dedicated water laboratory.
2024-122	Drinking Water Quality information should be on council's website.	Existing information exists, however there are likely to be gaps, and a gap analysis should be undertaken.	Long term data review undertake are part of the 2023-2024 DWQMP annual report.	2024	Undertake a gap analysis and arrange for that information to be vetted and uploaded.	2025			Internal Wages	Asset Management Coordinator	Council		Updated information is available on Council's website, as required by the regulator. Work is underway to produce water education and FAQ's for the Council website.
2024-123	It is proposed that an annual review of monitoring results over the preceding year will be undertaken as part of the annual report. The previous 3 years will be reviewed for long-term evaluation as part of the DWQMP review cycle	This action provides a degree of long term review. This will ensure that: 1.There is a process to assess overall performance against numerical guideline values, obligations or agreed levels of service; 2.The business identifies emerging problems and trends; 3.Priorities are determined for improving		2024	Long term data review undertake are part of the 2024-2025 DWQMP annual report.	2025	Long term data review undertake are part of the 2025-2026 DWQMP annual report.	2026	Internal Wages	Asset Management Coordinator	Procedural		Annual reviews are undertaken as part of the annual report process. A formalised process will be included in writing Council Drinking water quality manual.

Appendix B: Summary of Compliance with Water Quality Criteria (Verification Monitoring)

Hughenden - Raw Water Verification Monitoring				No. samples required under the approved DWQMP	Actual Total Samples Collected	No. Samples in which parameter was detected	Minimum Result	Maximum Result	Average Result	95th Percentile	ADWG Aesthetic (Health) Guideline	No. samples exceeding water quality criteria
	Paramater	Unit	PQL									
Micro	E.coli	CFU/100mL	1	208	175	4	<1	62	<1	56		
Physico/Chem	pH	pH units		48	28	28	7.76	8.36	8.13	8.34	6.5 - 8.5	0
	Electrical Conductivity	µS/cm	1	48	28	28	830	1190	982	1182		
	Turbidity	NTU	0.05	48	28	28	0.1	15.7	1.1	2.2	5	1
	Colour, True	Pt-Co Units	2	48	28	13	<2	16	<2	14	15	1
	Alkalinity	mg CaCO3/L	5	48	28	28	180	219	197	214		
	Calcium	mg/L	0.7	48	28	28	2.6	9.1	5.3	8.3		
	Calcium soluble	mg/L	0.7	48	28	28	2.6	9.0	5.3	7.9		
	Magnesium	mg/L	0.5	48	28	27	<0.5	3.6	1.2	2.2		
	Magnesium soluble	mg/L	0.5	48	28	27	<0.5	3.4	1.1	2.2		
	Sodium	mg/L	1.2	48	28	28	175.0	259.0	202.6	247.9	180	24
	Sodium soluble	mg/L	1.2	48	28	28	174.0	251.0	199.2	244.0	180	24
	Potassium	mg/L	0.5	48	28	28	1.7	3.6	2.3	3.3		
	Potassium soluble	mg/L	0.5	48	28	28	1.7	3.5	2.3	3.2		
	Aluminium	mg/L	0.01	48	28	2	<0.01	0.03	<0.01	0.03	0.2	0
	Aluminium soluble	mg/L	0.01	48	28	0	<0.01	<0.01	<0.01	<0.01	0.2	0
	Boron	mg/L	0.004	48	28	28	0.042	0.105	0.073	0.100	(4)	(0)
	Boron soluble	mg/L	0.004	48	28	28	0.041	0.105	0.072	0.100	(4)	(0)
	Iron	mg/L	0.002	48	28	28	0.007	2.300	0.194	0.713	0.3	3
	Iron soluble	mg/L	0.002	48	28	28	0.007	0.330	0.072	0.280	0.3	1
	Manganese	mg/L	0.0003	48	28	28	0.0100	0.0700	0.0261	0.0530	0.1(0.5)	0(0)
	Manganese soluble	mg/L	0.0003	48	28	28	0.0090	0.0500	0.0243	0.0400	0.1(0.5)	0(0)
	Copper	mg/L	0.002	48	28	2	<0.002	0.017	<0.002	0.016	1(2)	0(0)
	Copper soluble	mg/L	0.002	48	28	1	<0.002	0.003	<0.002	0.003	1(2)	0(0)
	Zinc	mg/L	0.001	48	28	15	<0.001	0.016	0.002	0.008	3	0
	Zinc soluble	mg/L	0.001	48	28	10	<0.001	0.003	<0.001	0.003	3	0
	Ammonia as N	mg/L as N	0.02	48	28	27	<0.02	0.40	0.24	0.37	0.5	0
	Oxidised Nitrogen as NOx-N	mg/L as N	0.01	48	28	4	<0.01	0.03	<0.01	0.03		
	Nitrite as N	mg/L as N	0.01	48	28	1	<0.01	0.01	<0.01	0.01	(3)	(0)
	Nitrate as N, Calc	mg/L as N	0.01	48	28	4	<0.01	0.03	<0.01	0.03	(50)	(0)
	Phosphate as P	mg/L as P	0.01	48	28	28	0.01	0.04	0.02	0.04		
	Silica as SiO2	mg/L	0.1	48	28	28	14.7	20.6	16.7	19.3	80(210)	0(0)
	Chloride	mg/L	0.5	48	28	28	90.6	138.0	108.0	128.0	250	0
	Sulfate	mg/L	0.5	48	28	28	55.3	163.0	106.3	161.30	250(500)	0(0)
	Fluoride	mg/L	0.02	48	28	28	0.07	0.11	0.09	0.10	(1.5)	(0)
	Bicarbonate as CaCO3	mg/L	5	48	28	28	177	219	196	214		
	Carbonate as CaCO3	mg/L	5	48	28	2	<5	16	<5	16		
	Hydroxide as CaCO3	mg/L	5	48	28	0	<5	<5	<5	<5		
	Hardness	mg CaCO3/L	1	48	28	28	7	34	18	29	200	0
	Sodium Adsorption Ratio*	index	0.1	48	28	28	13.9	30.1	21.3	28.8		
	Residual alkali*	index	0.1	48	28	28	2.4	3.3	2.9	3.2		
	Aggressive Index*	index	0.1	48	28	28	11.3	11.9	11.6	11.9		
	Langlier Saturation Index			48	28	28	-1.05	-0.13	-0.64	-0.30		
	pHs at 25C	index		48	28	28	8.14	8.70	8.39	8.54		
	Total Dissolved Solids by EC	mg/L		48	28	28	531	762	629	756.15	600	19
	Total Cations, mg/L	mg/L		48	28	28	180.63	258.29	208.63	251.77		
	Total Anions, mg/L	mg/L		48	28	28	363.64	514.32	432.32	512.70		
	Total Cations, meq/L	meq/L		48	28	28	7.85	11.26	9.12	10.98		
	Total Anions, meq/L	meq/L		48	28	28	7.61	11.07	9.20	10.98		
	Ionic Balance, %	%		48	28	28	-4.51	2.26	-0.49	2.20		
Heavy Metals	Arsenic	mg/L	0.0005	16	16	0	<0.0005	<0.0005	<0.0005	<0.0005	(0.01)	(0)
	Cadmium	mg/L	0.0004	16	16	0	<0.0004	<0.0004	<0.0004	<0.0004	(0.002)	(0)
	Chromium	mg/L	0.0003	16	16	3	<0.0003	0.0009	<0.0003	0.0009	(0.05)	(0)
	Lead	mg/L	0.0006	16	16	0	<0.0006	<0.0006	<0.0006	<0.0006	(0.005)	(0)
	Mercury	mg/L	0.0003	16	16	0	<0.0003	<0.0003	<0.0003	<0.0003	(0.001)	(0)
	Nickel	mg/L	0.001	0	4	0	<0.001	<0.001	<0.001	<0.001	(0.02)	(0)
PFAS	PFOA Trace Level	µg/L	0.002	4	4	0	<0.002	<0.002	<0.002	<0.002	(0.2)	(0)
	PFBS Trace Level	µg/L	0.01	4	4	0	<0.01	<0.01	<0.01	<0.01	(1)	(0)
	PFHxS Trace Level	µg/L	0.005	4	4	0	<0.005	<0.005	<0.005	<0.005	(0.03)	(0)
	PFOS Trace Level	µg/L	0.002	4	4	0	<0.002	<0.002	<0.002	<0.002	(0.008)	(0)
	PESTICIDE RESIDUES	Various		0	4	0	Below detectable limits					

Hughenden - Treated Water Verification Monitoring				No. samples required under the approved DWQMP	Actual Total Samples Collected	No. Samples in which parameter was detected	Minimum Result	Maximum Result	Average Result	95th Percentile	ADWG Aesthetic (Health) Guideline	No. samples exceeding water quality criteria
	Paramater	Unit	PQL									
Micro	E.coli	CFU/100mL	1	216	424	1	<1	1	<1	1	(1)	(1)
Physico/Chem	pH	pH units		20	23	23	7.88	8.26	8.09	8.25	6.5 - 8.5	0
	Electrical Conductivity	µS/cm	1	20	23	23	1009	1092	1051	1089		
	Turbidity	NTU	0.05	20	23	23	0.1	2.4	0.7	1.6	5	0
	Colour, True	Pt-Co Units	2	20	23	16	<2	14	3	13	15	0
	Alkalinity	mg CaCO3/L	5	20	23	23	106	204	194	203		
	Calcium	mg/L	0.7	20	23	23	4.5	6.3	5.2	5.9		
	Calcium soluble	mg/L	0.7	20	23	23	4.5	5.9	5.1	5.7		
	Magnesium	mg/L	0.5	20	23	23	0.8	1.0	0.9	1.0		
	Magnesium soluble	mg/L	0.5	20	23	23	0.7	1.0	0.9	1.0		
	Sodium	mg/L	1.2	20	23	23	202.0	250.0	223.5	248.8	180	23
	Sodium soluble	mg/L	1.2	20	23	23	202.0	242.0	219.0	236.0	180	23
	Potassium	mg/L	0.5	20	23	23	2.0	2.5	2.3	2.5		
	Potassium soluble	mg/L	0.5	20	23	23	1.9	2.5	2.2	2.5		
	Aluminium	mg/L	0.01	20	23	3	<0.01	0.02	<0.01	0.01	0.2	0
	Aluminium soluble	mg/L	0.01	20	23	0	<0.01	<0.01	<0.01	<0.01	0.2	0
	Boron	mg/L	0.004	20	23	23	0.043	0.098	0.070	0.097	(4)	(0)
	Boron soluble	mg/L	0.004	20	23	23	0.043	0.098	0.069	0.097	(4)	(0)
	Iron	mg/L	0.002	20	23	23	0.004	0.480	0.085	0.258	0.3	1
	Iron soluble	mg/L	0.002	20	23	18	<0.002	0.040	0.010	0.040	0.3	0
	Manganese	mg/L	0.0003	20	23	23	0.0010	0.4000	0.0487	0.1300	0.1(0.5)	4(0)
	Manganese soluble	mg/L	0.0003	20	23	19	<0.0003	0.0300	0.0054	0.0210	0.1(0.5)	0(0)
	Copper	mg/L	0.002	20	23	21	<0.002	0.103	0.010	0.012	1(2)	0(0)
	Copper soluble	mg/L	0.002	20	23	15	<0.002	0.103	0.008	0.038	1(2)	0(0)
	Zinc	mg/L	0.001	20	23	23	0.001	0.054	0.009	0.022	3	0
	Zinc soluble	mg/L	0.001	20	23	19	<0.001	0.051	0.007	0.025	3	0
	Ammonia as N	mg/L as N	0.02	20	23	10	<0.02	0.18	0.04	0.17	0.5	0
	Oxidised Nitrogen as NOx-N	mg/L as N	0.01	20	23	17	<0.01	0.38	0.13	0.34		
	Nitrite as N	mg/L as N	0.01	20	23	9	<0.01	0.34	0.04	0.26	(3)	(0)
	Nitrate as N, Calc	mg/L as N	0.01	20	23	17	<0.01	0.28	0.08	0.27	(50)	(0)
	Phosphate as P	mg/L as P	0.01	20	23	23	0.01	0.03	0.03	0.03		
	Silica as SiO2	mg/L	0.1	20	23	23	15.0	19.9	16.4	19.3	80(210)	0(0)
	Chloride	mg/L	0.5	20	23	23	109.0	122.0	114.8	122.0	250	0
	Sulfate	mg/L	0.5	20	23	23	111.0	132.0	122.2	132.00	250(500)	0(0)
	Fluoride	mg/L	0.02	20	23	23	0.08	0.09	0.08	0.09	(1.5)	(0)
	Bicarbonate as CaCO3	mg/L	5	20	23	23	188	206	198	204		
	Carbonate as CaCO3	mg/L	5	20	23	0	<5	<5	<5	<5		
	Hydroxide as CaCO3	mg/L	5	20	23	0	<5	<5	<5	<5		
	Hardness	mg CaCO3/L	1	20	23	23	15	19	16	18	200	0
	Sodium Adsorption Ratio*	index	0.1	20	23	23	21.0	26.9	23.7	26.7		
	Residual alkali*	index	0.1	20	23	23	2.8	3.0	2.9	3.0		
	Aggressive Index*	index	0.1	20	23	23	11.2	11.7	11.6	11.7		
	Langlier Saturation Index			20	23	23	-0.77	-0.25	-0.41	-0.26		
	pHs at 25C	index		20	23	23	8.30	8.67	8.40	8.44		
	Total Dissolved Solids by EC	mg/L		20	23	23	646	699	672	697.60	600	23
	Total Cations, mg/L	mg/L		20	23	23	210.30	249.88	228.64	243.23		
	Total Anions, mg/L	mg/L		20	23	23	437.84	476.16	455.81	473.63		
	Total Cations, meq/L	meq/L		20	23	23	9.18	10.90	9.97	10.61		
	Total Anions, meq/L	meq/L		20	23	23	9.28	10.24	9.75	10.20		
	Ionic Balance, %	%		20	23	23	-2.88	5.20	1.05	4.52		
Heavy Metals	Arsenic	mg/L	0.0005	20	23	0	<0.0005	<0.0005	<0.0005	<0.0005	(0.01)	(0)
	Cadmium	mg/L	0.0004	20	23	0	<0.0004	<0.0004	<0.0004	<0.0004	(0.002)	(0)
	Chromium	mg/L	0.0003	20	23	2	<0.0003	0.0005	<0.0003	0.0005	(0.05)	(0)
	Lead	mg/L	0.0006	20	23	2	<0.0006	0.0007	<0.0006	0.0007	(0.005)	(0)
	Mercury	mg/L	0.0003	20	23	0	<0.0003	<0.0003	<0.0003	<0.0003	(0.001)	(0)
	Nickel	mg/L	0.001	0	6	0	<0.001	<0.001	<0.001	<0.001	(0.02)	(0)
Disinfection By-Products	Chlorate	µg/L	50	30	54	44	<50	1270	540	1248	(800)	(15)
	Chlorite	µg/L	10	30	34	0	<10	<10	<10	<10	(800)	(0)
	Bromate	µg/L	10	30	29	0	<10	<10	<10	<10	(200)	(0)
	Bromoform	µg/L	2	25	34	14	<2	14	2	11		
	Chlorodibromomethane	µg/L	2	25	34	10	<2	6	<2	6		
	Bromodichloromethane	µg/L	2	25	34	0	<2	<2	<2	<2		
	Chloroform	µg/L	2	25	34	0	<2	<2	<2	<2		
	Trihalomethanes, Total	µg/L	8	25	34	9	<8	18	<8	17	(250)	(0)
Radio-nuclides	Total alpha activity	Bq/L	0.1	1	1	1	0.16	0.16	0.16	0.16	(0.5)	(0)
	Total beta activity	Bq/L	0.1	1	1	0	<0.1	<0.1	<0.1	<0.1		
	K40-corrected beta activity	Bq/L	0.1	1	1	0	<0.1	<0.1	<0.1	<0.1	(0.5)	(0)

Prairie - Raw Water Verification Monitoring				No. samples required under the approved DWQMP	Actual Total Samples Collected	No. Samples in which parameter was detected	Minimum Result	Maximum Result	Average Result	95th Percentile	ADWG Aesthetic (Health) Guideline	No. samples exceeding water quality criteria
	Paramater	Unit	PQL									
Micro	E.coli	CFU/100mL	1	104	91	8	<1	26	<1	25		
Physico/Chem	pH	pH units		24	13	13	7.88	8.49	8.02	8.27	6.5 - 8.5	0
	Electrical Conductivity	µS/cm	1	24	13	13	1194	1735	1318	1628		
	Turbidity	NTU	0.05	24	13	13	0.1	0.8	0.5	0.7	5	0
	Colour, True	Pt-Co Units	2	24	13	5	<2	7	<2	7	15	0
	Alkalinity	mg CaCO3/L	5	24	13	13	95	148	133	147		
	Calcium	mg/L	0.7	24	13	13	20.4	28.8	24.6	27.8		
	Calcium soluble	mg/L	0.7	24	13	13	20.4	28.8	24.3	27.4		
	Magnesium	mg/L	0.5	24	13	13	5.2	8.2	6.9	8.0		
	Magnesium soluble	mg/L	0.5	24	13	13	5.2	7.8	6.8	7.8		
	Sodium	mg/L	1.2	24	13	13	197.0	305.0	237.9	304.4	180	13
	Sodium soluble	mg/L	1.2	24	13	13	195.0	302.0	233.8	297.2	180	13
	Potassium	mg/L	0.5	24	13	13	5.1	6.2	5.8	6.2		
	Potassium soluble	mg/L	0.5	24	13	13	5.1	6.2	5.7	6.2		
	Aluminium	mg/L	0.01	24	13	1	<0.01	0.01	<0.01	0.01	0.2	0
	Aluminium soluble	mg/L	0.01	24	13	0	<0.01	<0.01	<0.01	<0.01	0.2	0
	Boron	mg/L	0.004	24	13	13	0.138	0.405	0.250	0.341	(4)	(0)
	Boron soluble	mg/L	0.004	24	13	13	0.137	0.390	0.244	0.335	(4)	(0)
	Iron	mg/L	0.002	24	13	13	0.010	0.430	0.197	0.382	0.3	5
	Iron soluble	mg/L	0.002	24	13	13	0.005	0.270	0.089	0.234	0.3	0
	Manganese	mg/L	0.0003	24	13	13	0.0300	0.1400	0.0415	0.0800	0.1(0.5)	1(0)
	Manganese soluble	mg/L	0.0003	24	13	13	0.0300	0.1400	0.0415	0.0800	0.1(0.5)	1(0)
	Copper	mg/L	0.002	24	13	0	<0.002	<0.002	<0.002	<0.002	1(2)	0(0)
	Copper soluble	mg/L	0.002	24	13	0	<0.002	<0.002	<0.002	<0.002	1(2)	0(0)
	Zinc	mg/L	0.001	24	13	10	<0.001	0.014	0.004	0.012	3	0
	Zinc soluble	mg/L	0.001	24	13	5	<0.001	0.013	0.002	0.011	3	0
	Ammonia as N	mg/L as N	0.02	24	13	12	<0.02	0.15	0.10	0.14	0.5	0
	Oxidised Nitrogen as NOx-N	mg/L as N	0.01	24	13	3	<0.01	0.07	0.01	0.07		
	Nitrite as N	mg/L as N	0.01	24	13	0	<0.01	<0.01	<0.01	<0.01	(3)	(0)
	Nitrate as N, Calc	mg/L as N	0.01	24	13	3	<0.01	0.07	0.01	0.07	(50)	(0)
	Phosphate as P	mg/L as P	0.01	24	13	6	<0.01	0.02	<0.01	0.02		
	Silica as SiO2	mg/L	0.1	24	13	13	12.7	20.8	18.1	20.7	80(210)	0(0)
	Chloride	mg/L	0.5	24	13	13	223.0	458.0	273.7	408.2	250	6
	Sulfate	mg/L	0.5	24	13	13	11.9	75.7	62.0	74.56	250(500)	0(0)
	Fluoride	mg/L	0.02	24	13	13	0.09	0.10	0.09	0.10	(1.5)	(0)
	Bicarbonate as CaCO3	mg/L	5	24	13	13	82	148	132	146		
	Carbonate as CaCO3	mg/L	5	24	13	1	<5	13	<5	13		
	Hydroxide as CaCO3	mg/L	5	24	13	0	<5	<5	<5	<5		
	Hardness	mg CaCO3/L	1	24	13	13	72	103	89	100	200	0
	Sodium Adsorption Ratio*	index	0.1	24	13	13	8.6	14.0	10.9	13.9		
	Residual alkali*	index	0.1	24	13	12	<0.1	0.8	0.4	0.7		
	Aggressive Index*	index	0.1	24	13	13	11.8	12.3	12.0	12.2		
	Langlier Saturation Index			24	13	13	-0.21	0.30	0.00	0.17		
	pHs at 25C	index		24	13	13	7.78	8.02	7.89	8.00		
	Total Dissolved Solids by EC	mg/L		24	13	13	764	1110	844	1041.60	600	13
	Total Cations, mg/L	mg/L		24	13	13	234.88	341.05	271.35	334.34		
	Total Anions, mg/L	mg/L		24	13	13	456.62	581.27	491.68	557.73		
	Total Cations, meq/L	meq/L		24	13	13	10.56	15.14	12.12	14.85		
	Total Anions, meq/L	meq/L		24	13	13	10.53	15.08	11.67	14.16		
	Ionic Balance, %	%		24	13	13	-4.64	8.69	1.86	6.00		
Heavy Metals	Arsenic	mg/L	0.0005	8	8	0	<0.0005	<0.0005	<0.0005	<0.0005	(0.01)	(0)
	Cadmium	mg/L	0.0004	8	8	0	<0.0004	<0.0004	<0.0004	<0.0004	(0.002)	(0)
	Chromium	mg/L	0.0003	8	8	0	<0.0003	<0.0003	<0.0003	<0.0003	(0.05)	(0)
	Lead	mg/L	0.0006	8	8	0	<0.0006	<0.0006	<0.0006	<0.0006	(0.005)	(0)
	Mercury	mg/L	0.0003	8	8	0	<0.0003	<0.0003	<0.0003	<0.0003	(0.001)	(0)
	Nickel	mg/L	0.001	0	2	0	<0.001	<0.001	<0.001	<0.001	(0.02)	(0)
PFAS	PFOA Trace Level	µg/L	0.002	2	2	0	<0.002	<0.002	<0.002	<0.002	(0.2)	(0)
	PFBS Trace Level	µg/L	0.01	2	2	0	<0.01	<0.01	<0.01	<0.01	(1)	(0)
	PFHxS Trace Level	µg/L	0.005	2	2	0	<0.005	<0.005	<0.005	<0.005	(0.03)	(0)
	PFOS Trace Level	µg/L	0.002	2	2	0	<0.002	<0.002	<0.002	<0.002	(0.008)	(0)
	PESTICIDE RESIDUES	Various		4	4	0	Below detectable limits					

Prairie - Treated Water Verification Monitoring				No. samples required under the approved DWQMP	Actual Total Samples Collected	No. Samples in which parameter was detected	Minimum Result	Maximum Result	Average Result	95th Percentile	ADWG Aesthetic (Health) Guideline	No. samples exceeding water quality criteria
	Paramater	Unit	PQL									
Micro	E.coli	CFU/100mL	1	64	110	0	<1	<1	<1	<1	(1)	(0)
Physico/Chem	pH	pH units		4	7	7	7.97	8.15	8.04	8.13	6.5 - 8.5	0
	Electrical Conductivity	µS/cm	1	4	7	7	1224	1358	1273	1355		
	Turbidity	NTU	0.05	4	7	7	0.4	2.2	1.1	2.1	5	0
	Colour, True	Pt-Co Units	2	4	7	4	<2	7	3	7	15	0
	Alkalinity	mg CaCO3/L	5	4	7	7	128	145	137	145		
	Calcium	mg/L	0.7	4	7	7	23.7	26.8	25.9	26.8		
	Calcium soluble	mg/L	0.7	4	7	7	23.6	26.6	25.7	26.6		
	Magnesium	mg/L	0.5	4	7	7	6.3	8.0	7.2	7.9		
	Magnesium soluble	mg/L	0.5	4	7	7	6.3	7.7	7.1	7.6		
	Sodium	mg/L	1.2	4	7	7	202.0	250.0	224.4	245.5	180	7
	Sodium soluble	mg/L	1.2	4	7	7	202.0	248.0	221.9	244.1	180	7
	Potassium	mg/L	0.5	4	7	7	5.4	6.1	5.8	6.1		
	Potassium soluble	mg/L	0.5	4	7	7	5.4	6.1	5.8	6.1		
	Aluminium	mg/L	0.01	4	7	1	<0.01	0.03	<0.01	0.03	0.2	0
	Aluminium soluble	mg/L	0.01	4	7	1	<0.01	0.03	<0.01	0.03	0.2	0
	Boron	mg/L	0.004	4	7	7	0.156	0.275	0.220	0.272	(4)	(0)
	Boron soluble	mg/L	0.004	4	7	7	0.151	0.275	0.217	0.270	(4)	(0)
	Iron	mg/L	0.002	4	7	7	0.007	0.240	0.105	0.231	0.3	0
	Iron soluble	mg/L	0.002	4	7	4	<0.002	0.010	0.004	0.010	0.3	0
	Manganese	mg/L	0.0003	4	7	7	0.0100	0.0400	0.0300	0.0400	0.1(0.5)	0(0)
	Manganese soluble	mg/L	0.0003	4	7	4	<0.0003	0.0060	0.0010	0.0052	0.1(0.5)	0(0)
	Copper	mg/L	0.002	4	7	4	<0.002	0.021	0.010	0.021	1(2)	0(0)
	Copper soluble	mg/L	0.002	4	7	4	<0.002	0.011	0.005	0.011	1(2)	0(0)
	Zinc	mg/L	0.001	4	7	7	0.002	0.015	0.009	0.014	3	0
	Zinc soluble	mg/L	0.001	4	7	7	0.001	0.007	0.005	0.007	3	0
	Ammonia as N	mg/L as N	0.02	4	7	1	<0.02	0.04	<0.02	0.04	0.5	0
	Oxidised Nitrogen as NOx-N	mg/L as N	0.01	4	7	7	0.01	0.03	0.01	0.03		
	Nitrite as N	mg/L as N	0.01	4	7	0	<0.01	<0.01	<0.01	<0.01	(3)	(0)
	Nitrate as N, Calc	mg/L as N	0.01	4	7	7	0.01	0.03	0.01	0.03	(50)	(0)
	Phosphate as P	mg/L as P	0.01	4	7	2	<0.01	0.01	<0.01	0.01		
	Silica as SiO2	mg/L	0.1	4	7	7	17.8	21.4	19.1	21.2	80(210)	0(0)
	Chloride	mg/L	0.5	4	7	7	235.0	284.0	254.9	283.4	250	3
	Sulfate	mg/L	0.5	4	7	7	59.8	77.4	68.1	76.05	250(500)	0(0)
	Fluoride	mg/L	0.02	4	7	7	0.10	0.11	0.10	0.11	(1.5)	(0)
	Bicarbonate as CaCO3	mg/L	5	4	7	7	128	145	137	145		
	Carbonate as CaCO3	mg/L	5	4	7	0	<5	<5	<5	<5		
	Hydroxide as CaCO3	mg/L	5	4	7	0	<5	<5	<5	<5		
	Hardness	mg CaCO3/L	1	4	7	7	88	98	93	97	200	0
	Sodium Adsorption Ratio*	index	0.1	4	7	7	8.9	11.6	10.0	11.4		
	Residual alkali*	index	0.1	4	7	7	0.3	0.4	0.4	0.4		
	Aggressive Index*	index	0.1	4	7	7	11.9	12.2	12.1	12.2		
	Langlier Saturation Index			4	7	7	-0.05	0.22	0.07	0.19		
	pHs at 25C	index		4	7	7	7.81	7.90	7.85	7.89		
	Total Dissolved Solids by EC	mg/L		4	7	7	783	869	815	866.90	600	7
	Total Cations, mg/L	mg/L		4	7	7	241.33	284.90	260.68	281.49		
	Total Anions, mg/L	mg/L		4	7	7	469.73	497.76	484.13	497.64		
	Total Cations, meq/L	meq/L		4	7	7	10.85	12.71	11.68	12.56		
	Total Anions, meq/L	meq/L		4	7	7	10.96	11.81	11.35	11.80		
	Ionic Balance, %	%		4	7	7	-1.26	4.67	1.36	3.87		
Heavy Metals	Arsenic	mg/L	0.0005	4	7	0	<0.0005	<0.0005	<0.0005	<0.0005	(0.01)	(0)
	Cadmium	mg/L	0.0004	4	7	0	<0.0004	<0.0004	<0.0004	<0.0004	(0.002)	(0)
	Chromium	mg/L	0.0003	4	7	0	<0.0003	<0.0003	<0.0003	<0.0003	(0.05)	(0)
	Lead	mg/L	0.0006	4	7	4	<0.0006	0.0034	0.0012	0.0032	(0.005)	(0)
	Mercury	mg/L	0.0003	4	7	0	<0.0003	<0.0003	<0.0003	<0.0003	(0.001)	(0)
	Nickel	mg/L	0.001	0	2	0	<0.001	<0.001	<0.001	<0.001	(0.02)	(0)
Disinfection By-Products	Chlorate	µg/L	50	6	11	11	103	262	144	241	(800)	(0)
	Chlorite	µg/L	10	6	11	0	<10	<10	<10	<10	(800)	(0)
	Bromate	µg/L	10	6	9	0	<10	<10	<10	<10	(200)	(0)
	Bromoform	µg/L	2	6	11	5	<2	7	<2	7		
	Chlorodibromomethane	µg/L	2	6	11	2	<2	3	<2	3		
	Bromodichloromethane	µg/L	2	6	11	0	<2	<2	<2	<2		
	Chloroform	µg/L	2	6	11	0	<2	<2	<2	<2		
	Trihalomethanes, Total	µg/L	8	6	11	2	<8	10	<8	10	(250)	(0)
Radio-nuclides	Total alpha activity	Bq/L	0.1	1	1	0	<0.1	<0.1	<0.1	<0.1	(0.5)	(0)
	Total beta activity	Bq/L	0.1	1	1	0	<0.1	<0.1	<0.1	<0.1		
	K40-corrected beta activity	Bq/L	0.1	1	1	0	<0.1	<0.1	<0.1	<0.1	(0.5)	(0)

Torrens Creek - Raw Water Verification Monitoring				No. samples required under the approved DWQMP	Actual Total Samples Collected	No. Samples in which parameter was detected	Minimum Result	Maximum Result	Average Result	95th Percentile	ADWG Aesthetic (Health) Guideline	No. samples exceeding water quality criteria
	Paramater	Unit	PQL									
Micro	E.coli	CFU/100mL	1	52	51	3	<1	118	3	108		
Physico/Chem	pH	pH units		12	7	7	6.17	6.58	6.27	6.49	6.5 - 8.5	6
	Electrical Conductivity	µS/cm	1	12	7	7	202	226	215	224		
	Turbidity	NTU	0.05	12	7	7	6.6	32.1	14.5	28.6	5	7
	Colour, True	Pt-Co Units	2	12	7	2	<2	29	4	28	15	1
	Alkalinity	mg CaCO3/L	5	12	7	7	33	42	39	42		
	Calcium	mg/L	0.7	12	7	7	1.5	1.7	1.6	1.7		
	Calcium soluble	mg/L	0.7	12	7	7	1.5	1.6	1.6	1.6		
	Magnesium	mg/L	0.5	12	7	7	4.7	5.9	5.5	5.9		
	Magnesium soluble	mg/L	0.5	12	7	7	4.7	5.9	5.5	5.9		
	Sodium	mg/L	1.2	12	7	7	21.0	25.1	23.6	25.0	180	0
	Sodium soluble	mg/L	1.2	12	7	7	21.0	25.1	23.5	25.0	180	0
	Potassium	mg/L	0.5	12	7	7	13.5	19.0	16.1	18.4		
	Potassium soluble	mg/L	0.5	12	7	7	13.5	18.4	16.0	18.0		
	Aluminium	mg/L	0.01	12	7	4	<0.01	0.05	0.02	0.05	0.2	0
	Aluminium soluble	mg/L	0.01	12	7	0	<0.01	<0.01	<0.01	<0.01	0.2	0
	Boron	mg/L	0.004	12	7	7	0.030	0.049	0.041	0.048	(4)	(0)
	Boron soluble	mg/L	0.004	12	7	7	0.026	0.049	0.040	0.047	(4)	(0)
	Iron	mg/L	0.002	12	7	7	0.840	5.700	2.120	4.680	0.3	7
	Iron soluble	mg/L	0.002	12	7	5	<0.002	0.940	0.259	0.848	0.3	2
	Manganese	mg/L	0.0003	12	7	7	0.0400	0.0700	0.0529	0.0670	0.1(0.5)	0(0)
	Manganese soluble	mg/L	0.0003	12	7	7	0.0400	0.0500	0.0486	0.0500	0.1(0.5)	0(0)
	Copper	mg/L	0.002	12	7	7	0.003	0.009	0.005	0.008	1(2)	0(0)
	Copper soluble	mg/L	0.002	12	7	1	<0.002	0.003	<0.002	0.003	1(2)	0(0)
	Zinc	mg/L	0.001	12	7	7	0.011	0.026	0.014	0.023	3	0
	Zinc soluble	mg/L	0.001	12	7	7	0.011	0.017	0.013	0.016	3	0
	Ammonia as N	mg/L as N	0.02	12	7	0	<0.02	<0.02	<0.02	<0.02	0.5	0
	Oxidised Nitrogen as NOx-N	mg/L as N	0.01	12	7	7	0.26	0.35	0.31	0.35		
	Nitrite as N	mg/L as N	0.01	12	7	0	<0.01	<0.01	<0.01	<0.01	(3)	(0)
	Nitrate as N, Calc	mg/L as N	0.01	12	7	7	0.26	0.35	0.31	0.35	(50)	(0)
	Phosphate as P	mg/L as P	0.01	12	7	0	<0.01	<0.01	<0.01	<0.01		
	Silica as SiO2	mg/L	0.1	12	7	7	13.9	18.4	15.7	17.8	80(210)	0(0)
	Chloride	mg/L	0.5	12	7	7	30.2	38.8	35.5	38.7	250	0
	Sulfate	mg/L	0.5	12	7	7	1.9	6.0	5.0	6.00	250(500)	0(0)
	Fluoride	mg/L	0.02	12	7	7	0.06	0.07	0.06	0.07	(1.5)	(0)
	Bicarbonate as CaCO3	mg/L	5	12	7	7	33	42	39	42		
	Carbonate as CaCO3	mg/L	5	12	7	0	<5	<5	<5	<5		
	Hydroxide as CaCO3	mg/L	5	12	7	0	<5	<5	<5	<5		
	Hardness	mg CaCO3/L	1	12	7	7	23	28	27	28	200	0
	Sodium Adsorption Ratio*	index	0.1	12	7	7	1.8	2.1	2.0	2.1		
	Residual alkali*	index	0.1	12	7	5	<0.1	0.2	<0.1	0.2		
	Aggressive Index*	index	0.1	12	7	7	8.4	8.8	8.5	8.7		
	Langlier Saturation Index			12	7	7	-3.88	-3.42	-3.75	-3.51		
	pHs at 25C	index		12	7	7	9.56	9.72	9.62	9.69		
	Total Dissolved Solids by EC	mg/L		12	7	7	129	145	137	143.80	600	0
	Total Cations, mg/L	mg/L		12	7	7	44.32	49.35	47.19	49.34		
	Total Anions, mg/L	mg/L		12	7	7	91.46	104.18	99.26	103.88		
	Total Cations, meq/L	meq/L		12	7	7	1.84	2.09	1.99	2.09		
	Total Anions, meq/L	meq/L		12	7	7	1.76	2.01	1.90	2.00		
	Ionic Balance, %	%		12	7	7	0.15	4.57	2.28	4.36		
Heavy Metals	Arsenic	mg/L	0.0005	4	4	1	<0.0005	0.0008	<0.0005	0.0008	(0.01)	(0)
	Cadmium	mg/L	0.0004	4	4	0	<0.0004	<0.0004	<0.0004	<0.0004	(0.002)	(0)
	Chromium	mg/L	0.0003	4	4	2	<0.0003	0.0050	0.0014	0.0048	(0.05)	(0)
	Lead	mg/L	0.0006	4	4	1	<0.0006	0.0009	<0.0006	0.0009	(0.005)	(0)
	Mercury	mg/L	0.0003	4	4	0	<0.0003	<0.0003	<0.0003	<0.0003	(0.001)	(0)
	Nickel	mg/L	0.001	0	1	1	0.004	0.004	0.004	0.004	(0.02)	(0)
PFAS	PFOA Trace Level	µg/L	0.002	1	1	0	<0.002	<0.002	<0.002	<0.002	(0.2)	(0)
	PFBS Trace Level	µg/L	0.01	1	1	0	<0.01	<0.01	<0.01	<0.01	(1)	(0)
	PFHxS Trace Level	µg/L	0.005	1	1	0	<0.005	<0.005	<0.005	<0.005	(0.03)	(0)
	PFOS Trace Level	µg/L	0.002	1	1	0	<0.002	<0.002	<0.002	<0.002	(0.008)	(0)
	PESTICIDE RESIDUES	Various		2	2	0	Below detectable limits					

	Torrens Creek - Treated Water Verification Monitoring			No. samples required under the approved DWQMP	Actual Total Samples Collected	No. Samples in which parameter was detected	Minimum Result	Maximum Result	Average Result	95th Percentile	ADWG Aesthetic (Health) Guideline	No. samples exceeding water quality criteria
	Paramater	**Unit**	**PQL**									
Micro	E.coli	CFU/100mL	1	64	115	0	<1	<1	<1	<1	(1)	(0)
Physico/Chem	pH	pH units		4	7	7	6.14	6.40	6.29	6.40	6.5 - 8.5	7
	Electrical Conductivity	µS/cm	1	4	7	7	214	226	221	226		
	Turbidity	NTU	0.05	4	7	7	0.2	0.9	0.4	0.8	5	0
	Colour, True	Pt-Co Units	2	4	7	2	<2	<2	<2	1	15	0
	Alkalinity	mg CaCO3/L	5	4	7	7	36	42	39	42		
	Calcium	mg/L	0.7	4	7	7	1.4	1.6	1.5	1.6		
	Calcium soluble	mg/L	0.7	4	7	7	1.4	1.6	1.4	1.6		
	Magnesium	mg/L	0.5	4	7	7	4.9	6.2	5.7	6.1		
	Magnesium soluble	mg/L	0.5	4	7	7	4.8	6.2	5.6	6.1		
	Sodium	mg/L	1.2	4	7	7	22.5	26.6	24.5	26.3	180	0
	Sodium soluble	mg/L	1.2	4	7	7	22.5	26.6	24.3	26.1	180	0
	Potassium	mg/L	0.5	4	7	7	14.9	19.1	16.2	18.9		
	Potassium soluble	mg/L	0.5	4	7	7	14.8	19.1	16.1	18.9		
	Aluminium	mg/L	0.01	4	7	2	<0.01	0.01	<0.01	0.01	0.2	0
	Aluminium soluble	mg/L	0.01	4	7	0	<0.01	<0.01	<0.01	<0.01	0.2	0
	Boron	mg/L	0.004	4	7	7	0.029	0.048	0.040	0.048	(4)	(0)
	Boron soluble	mg/L	0.004	4	7	7	0.026	0.047	0.038	0.047	(4)	(0)
	Iron	mg/L	0.002	4	7	7	0.006	0.050	0.019	0.041	0.3	0
	Iron soluble	mg/L	0.002	4	7	1	<0.002	0.006	<0.002	0.006	0.3	0
	Manganese	mg/L	0.0003	4	7	7	0.0060	0.0400	0.0161	0.0370	0.1(0.5)	0(0)
	Manganese soluble	mg/L	0.0003	4	7	7	0.0020	0.0300	0.0117	0.0270	0.1(0.5)	0(0)
	Copper	mg/L	0.002	4	7	7	0.007	0.140	0.060	0.128	1(2)	0(0)
	Copper soluble	mg/L	0.002	4	7	7	0.007	0.136	0.058	0.126	1(2)	0(0)
	Zinc	mg/L	0.001	4	7	7	0.014	0.129	0.061	0.126	3	0
	Zinc soluble	mg/L	0.001	4	7	7	0.014	0.129	0.060	0.126	3	0
	Ammonia as N	mg/L as N	0.02	4	7	0	<0.02	<0.02	<0.02	<0.02	0.5	0
	Oxidised Nitrogen as NOx-N	mg/L as N	0.01	4	7	7	0.28	0.36	0.32	0.35		
	Nitrite as N	mg/L as N	0.01	4	7	0	<0.01	<0.01	<0.01	<0.01	(3)	(0)
	Nitrate as N, Calc	mg/L as N	0.01	4	7	7	0.28	0.36	0.32	0.35	(50)	(0)
	Phosphate as P	mg/L as P	0.01	4	7	1	<0.01	0.03	<0.01	0.03		
	Silica as SiO2	mg/L	0.1	4	7	7	13.7	18.2	15.3	18.2	80(210)	0(0)
	Chloride	mg/L	0.5	4	7	7	35.7	37.9	36.7	37.9	250	0
	Sulfate	mg/L	0.5	4	7	7	1.8	5.5	4.1	5.47	250(500)	0(0)
	Fluoride	mg/L	0.02	4	7	7	0.04	0.07	0.06	0.07	(1.5)	(0)
	Bicarbonate as CaCO3	mg/L	5	4	7	7	36	42	39	42		
	Carbonate as CaCO3	mg/L	5	4	7	0	<5	<5	<5	<5		
	Hydroxide as CaCO3	mg/L	5	4	7	0	<5	<5	<5	<5		
	Hardness	mg CaCO3/L	1	4	7	7	23	29	27	29	200	0
	Sodium Adsorption Ratio*	index	0.1	4	7	7	1.9	2.2	2.1	2.2		
	Residual alkali*	index	0.1	4	7	6	<0.1	0.2	0.1	0.2		
	Aggressive Index*	index	0.1	4	7	7	8.3	8.6	8.5	8.6		
	Langlier Saturation Index			4	7	7	-3.92	-3.50	-3.73	-3.54		
	pHs at 25C	index		4	7	7	9.61	9.69	9.64	9.69		
	Total Dissolved Solids by EC	mg/L		4	7	7	137	145	142	145.00	600	0
	Total Cations, mg/L	mg/L		4	7	7	45.47	49.96	47.63	49.94		
	Total Anions, mg/L	mg/L		4	7	7	97.68	102.20	99.53	101.69		
	Total Cations, meq/L	meq/L		4	7	7	1.91	2.14	2.01	2.12		
	Total Anions, meq/L	meq/L		4	7	7	1.83	2.01	1.93	2.00		
	Ionic Balance, %	%		4	7	7	-1.78	5.93	2.12	5.79		
Heavy Metals	Arsenic	mg/L	0.0005	4	7	0	<0.0005	<0.0005	<0.0005	<0.0005	(0.01)	(0)
	Cadmium	mg/L	0.0004	4	7	0	<0.0004	<0.0004	<0.0004	<0.0004	(0.002)	(0)
	Chromium	mg/L	0.0003	4	7	0	<0.0003	<0.0003	<0.0003	<0.0003	(0.05)	(0)
	Lead	mg/L	0.0006	4	7	5	<0.0006	0.0039	0.0015	0.0037	(0.005)	(0)
	Mercury	mg/L	0.0003	4	7	0	<0.0003	<0.0003	<0.0003	<0.0003	(0.001)	(0)
	Nickel	mg/L	0.001	0	2	2	0.004	0.005	0.005	0.005	(0.02)	(0)
Disinfection By-Products	Chlorate	µg/L	50	6	19	19	67	4051	890	3670	(800)	(7)
	Chlorite	µg/L	10	6	11	0	<10	<10	<10	<10	(800)	(0)
	Bromate	µg/L	10	6	9	0	<10	<10	<10	<10	(200)	(0)
	Bromoform	µg/L	2	6	11	1	<2	3	<2	3		
	Chlorodibromomethane	µg/L	2	6	11	3	<2	3	<2	3		
	Bromodichloromethane	µg/L	2	6	11	1	<2	3	<2	3		
	Chloroform	µg/L	2	6	11	0	<2	<2	<2	<2		
	Trihalomethanes, Total	µg/L	8	6	11	0	<8	<8	<8	<8	(250)	(0)
Radio-nuclides	Total alpha activity	Bq/L	0.1	1	1	1	0.37	0.37	0.37	0.37	(0.5)	(0)
	Total beta activity	Bq/L	0.1	1	1	1	0.50	0.50	0.50	0.50		
	K40-corrected beta activity	Bq/L	0.1	1	1	0	<0.1	<0.1	<0.1	<0.1	(0.5)	(0)

Drinking water scheme: **Hughenden**

Year	*2024 to 2025*											
Month	***July***	***Aug***	***Sept***	***Oct***	***Nov***	***Dec***	***Jan***	***Feb***	***Mar***	***Apr***	***May***	***Jun***
No. of samples collected	36	24	24	36	24	92	36	24	26	41	28	33
No. of samples collected in which *E. coli* is detected (i.e. a failure)	0	0	0	0	1	0	0	0	0	0	0	0
No. of samples collected in previous 12 month period	255	266	278	290	292	379	385	392	400	423	433	424
No. of failures for previous 12 month period	0	0	0	0	1	1	1	1	1	1	1	1
% of samples that comply	100.0%	100.0%	100.0%	100.0%	99.7%	99.7%	99.7%	99.7%	99.8%	99.8%	99.8%	99.8%
Compliance with 98% annual value	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

CALCULATE PERCENTAGE USING A TWELVE (12) MONTH 'ROLLING' ANNUAL VALUE

The *Public Health Regulation 2005* (the regulation) requires that 98 per cent of samples taken in a 12 month period should contain no *E. Coli*. This requirement is refered to as the 'annual value' in Schedule 3A of the regulation.

This requirement comes into effect once you have 12 months data and should be assessed every month based on the previous 12 months data (so that it is a 'rolling' assessment).

Drinking water scheme: **Prairie**

Year	*2024 to 2025*											
Month	***July***	***Aug***	***Sept***	***Oct***	***Nov***	***Dec***	***Jan***	***Feb***	***Mar***	***Apr***	***May***	***Jun***
No. of samples collected	12	8	8	12	8	4	12	10	9	10	9	8
No. of samples collected in which *E. coli* is detected (i.e. a failure)	0	0	0	0	0	0	0	0	0	0	0	0
No. of samples collected in previous 12 month period	90	93	97	101	97	99	101	105	108	112	115	110
No. of failures for previous 12 month period	0	0	0	0	0	0	0	0	0	0	0	0
% of samples that comply	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Compliance with 98% annual value	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

CALCULATE PERCENTAGE USING A TWELVE (12) MONTH 'ROLLING' ANNUAL VALUE

The *Public Health Regulation 2005* (the regulation) requires that 98 per cent of samples taken in a 12 month period should contain no *E. Coli* . This requirement is refered to as the 'annual value' in Schedule 3A of the regulation.

This requirement comes into effect once you have 12 months data and should be assessed every month based on the previous 12 months data (so that it is a 'rolling' assessment).

Drinking water scheme: **Torrens Creek**

Year	*2024 to 2025*											
Month	***July***	***Aug***	***Sept***	***Oct***	***Nov***	***Dec***	***Jan***	***Feb***	***Mar***	***Apr***	***May***	***Jun***
No. of samples collected	12	8	8	12	8	4	12	14	9	10	9	9
No. of samples collected in which *E. coli* is detected (i.e. a failure)	0	0	0	0	0	0	0	0	0	0	0	0
No. of samples collected in previous 12 month period	91	94	98	102	98	100	102	110	113	117	120	115
No. of failures for previous 12 month period	0	0	0	0	0	0	0	0	0	0	0	0
% of samples that comply	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Compliance with 98% annual value	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

CALCULATE PERCENTAGE USING A TWELVE (12) MONTH 'ROLLING' ANNUAL VALUE

The *Public Health Regulation 2005* (the regulation) requires that 98 per cent of samples taken in a 12 month period should contain no *E. Coli* . This requirement is refered to as the 'annual value' in Schedule 3A of the regulation.

This requirement comes into effect once you have 12 months data and should be assessed every month based on the previous 12 months data (so that it is a 'rolling' assessment).