Drinking Water Quality Management Plan Report

FLINDERS SHIRE COUNCIL

SPID: **51**

2021/2022

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.

Contents

1 Introduction

This is the Drinking Water Quality Management Plan (DWQMP) report for Flinders Shire Council (FSC) for the financial year 2021 - 2022. FSC is a registered service provider with identification (SPID) number 51. FSC is operating under an approved DWQMP to ensure consistent supply of safe quality drinking water in order 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:

- the activities undertaken over the financial year in operating our drinking water service
- drinking water quality summary
- summary of our performance in implementing our approved DWQMP

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

2 Summary of scheme/s operated

Table 1 – Summary of schemes

	Water Source	***Treatment processes***	***Towns supplied***
Hughenden	Bore 2 Bore 5 Bore 7 Bore 9	Chlorinated	Hughenden
Prairie	Bore	Chlorinated	Hughenden
Torrens Creek	Bore	Clarification, filtration & Chlorination	Torrens Creek
Torrens Creek – Emergency Supply	Bore	Clarification, filtration & Chlorination	Torrens Creek

3 DWQMP implementation

Implementation of the DWQMP carried on throughout the 2021/2022 financial year.

Engineering team meetings

The Engineering team meets on a fortnightly basis to discuss engineering projects and operational works (including water and sewerage).

SCADA Project meetings

The SCADA Project team has held fortnightly meeting to discuss the SCADA upgrade in the Shire.

Progress in implementing the risk management improvement program

Flinders Shire Council's DWQMP includes a Risk Management 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 could implement changes to manage hazards/risks and uncertainties. The program outlines interim, short-term and long-term actions for Council to implement in order to manage the identified hazards/risks and uncertainties.

Verification monitoring

There has been a change to the parameters analysed in the verification monitoring. This has change was made as a result in the difficulties experienced when sending samples via different Courier companies to Brisbane for analysis. Samples either arrived in Brisbane late or not at all, as a result, samples are now analysed at Townsville Laboratory (NATA accredited lab). This means that the verification monitoring data in this report differs from the DWQMP. This will be fixed when the plan is reviewed and updated in early 2023.

PFAS Study

FSC engaged GHD Pty Ltd to undertake sampling of raw groundwater bores supplying Council's water supply for per - and polyfluoroalkyl substances (PFAS). GHD undertook groundwater sampling from seven Council water supply bores across three townships (Hughenden, Prairie and Torrens Creek) on the 17th of February 2022. All seven supply bores recorded concentrations of perfluoroalkyl sulfonic acids, perfluoroalkyl carboxylic acids, perfluoroalkyl sulfonamides and fluorotelomer sulfonic acids below the laboratory LOR. The laboratory LOR in all instances is less than theinvestigations adopted guidelines for human health (drinking and recreation).

Regulator visit

Officers visited the Shire in 2022 to inspect and offer guidance on the DWQMP.

The actions undertaken to implement the risk management improvement program are discussed in Table 2.

Table 2 – Risk management improvement program implementation status

IP Item	Improvement actions	Description	Status and revised target dates
IP-1	Bore Head improvement program	Mounding of concrete around bore heads, replacement/Maintenance of slabs. Sealing of possible ingress sites.	Ongoing
IP-2	Investigation of options for improving the integrity of bore casings	Inspection of selected bores with cameras to establish what work is required. Options can be explored once Council has up-to-date data.	Council has successfully received funding for the following two projects: • Hughenden Water Supply Reticulation Network Condition Assessment. • Prairie Water Supply Reticulation Network Condition Assessment. These projects will assess the condition of the Water Supply reticulation networks from the Bores to storage and then to the end users. Projects to start in 2023.
IP-3	Long-term replacement program for bore casements	Dependent on outcome from IP-2. Once options have been explored Council can develop a long-term replacement program.	Dependent upon IP-2.
IP-4	Bore Replacement Program	Money is currently put aside each year to fund new bores. The need for a new bore/ conditioning of old bores is highly dependent upon the outcome of IP-3.	Unknown
IP-5	Chlorination at Hughenden	Installation of Chlorination equipment. Equipment can be housed in same facility as Fluoridation equipment.	Completed
IP-6	Development of Cyber Security Plan	IT Officer is currently developing Cyber Security Strategy and Plan	
IP-7	Water Mains replacement	Development of program to replace water mains in Hughenden, Torrens Creek and Prairie.	Program is ongoing.

IP-8	Additional Chlorination to occur after a Mains Break	Plumbers to record details in diary/logbook	Ongoing
IP-9	Air Scouring Program for Flinders.	Investigation into the cost of hiring contractors to undertake work. A program will be developed once costs are established. Interim: Ongoing flushing of Mains. Short-term: Investigation and cost analysis Long-term: Development of program.	Technical Officer is finalising scope of works and contract details so the project can go out for tender on Vendor Panel in early 2023.
IP-10	Development of training and Induction program for Water officers	Investigation of training requirements for water officers.	Training provider to provide on-site training now new reservoir and chlorination system in Hughenden completed. 2022 - 2024
IP-11	Replacement of Lead-jointed concrete pipes	Ongoing replacement of Lead-jointed concrete pipes. Many pipes have been replaced over the past 4 years. Remaining pipes will be replaced.	In progress - ongoing
IP-12	Installation of new tanks in Prairie and Torrens Creek	New larger tanks have been purchased for Torrens Creek and Prairie	Completed
IP-13	Development of Asset Plan for Torrens Creek	Develop Asset plan for Torrens Creek, undertake risk assessment to inform what replacement parts are required for WTP.	In progress
IP-14	Analysis of Torrens Creek River well and investigation of interconnectivity of bore and river	Interim: conduct monitoring of River well and Bore Short-term: investigate trends of monitoring results Long-term: dependent upon the results of the investigation.	Ongoing
IP-15	Development of Monitoring Program for inspection of temporary foam sealant and slab condition of all bores	Development of Monitoring Program for inspection of temporary foam sealant and slab condition of all bores	Completed.
IP-16	Turbidity Monitoring at Torrens Creek	Weekly in-house turbidity monitoring of Torrens Creek Reticulation	Ongoing – new meter purchased for Plumbers.

4 Operational and Verification monitoring - water quality information and summary

This section discusses the compliance with the water quality criteria.

Table 3: Operational monitoring

Scheme name	Parameter	No. of samples required to be collected.	No of samples actually collected and tested	Operational criteria	No. of non-compliant samples (i.e., did not meet operational criteria)	Comments
Hughenden	Free Chlorine	Weekly	69	Critical limits 0.01mg/L – 4mg/L	2	Readings of 0 recorded at reservoir outlet due to power outage at plant. Further samples in reticulation recorded compliant levels of free chlorine.
Prairie	Free Chlorine	3 times a week	153	Critical limits 0.1mg/L – 3mg/L	5	Levels below 0.1mg/L recorded 5 times. Operator adjustment required
Torrens Creek	Free Chlorine	3 times a week	148	Critical limits 0.1mg/L – 3mg/L	3	Levels below 0.1mg/L recorded 3 times – due to power outages. Operator adjustment required
Torrens Creek	Turbidity	monthly	92	>5NTU	11	Disinfection limits remained within critical limits

Table 4 Verification monitoring pesticides

Scheme	**Parameter**	No. of sample required to be collected (as per approved DWQMP)	**Number of samples collected** and tested	ADWG Health Value	No. of non-compliant samples	**Comments**
Hughenden Torrens Creek Prairie	Ametryn	4 times a year	9	70	0	There have been issues with transport Couriers to Brisbane
Hughenden	Amitraz	4 times a year	9	9	0	There have been issues with transport Couriers to Brisbane
Torrens Creek	Atrazine	4 times a year	9	20	0	There have been issues with transport Couriers to Brisbane
Prairie	Bromacil	4 times a year	9	400	0	There have been issues with transport Couriers to Brisbane
Hughenden	Diclofop-methyl	4 times a year	9	5	0	There have been issues with transport Couriers to Brisbane
Torrens Creek	Fluometuron	4 times a year	9	70	0	There have been issues with transport Couriers to Brisbane
Prairie	Haloxyfop-2-etotyl	4 times a year	9	1	0	There have been issues with transport Couriers to Brisbane
Hughenden	Haloxyfop-methyl	4 times a year	9	1	0	There have been issues with transport Couriers to Brisbane
Torrens Creek	Hexazinone	4 times a year	9	400	0	There have been issues with transport Couriers to Brisbane
Prairie	Metolachlor	4 times a year	9	300	0	There have been issues with transport Couriers to Brisbane
Hughenden	Metribuzin	4 times a year	9	70	0	There have been issues with transport Couriers to Brisbane
Torrens Creek	Molinate	4 times a year	9	4	0	There have been issues with transport Couriers to Brisbane
Prairie	Pendimethalin	4 times a year	9	400	0	There have been issues with transport Couriers to Brisbane
Hughenden	Propanil	4 times a year	9	700	0	There have been issues with transport Couriers to Brisbane
Torrens Creek	Propazine	4 times a year	9	50	0	There have been issues with transport Couriers to Brisbane

Prairie	Simazine	4 times a year	9	20	0	There have been issues with transport Couriers to Brisbane
Hughenden	Terbuthylazine	4 times a year	9	10	0	There have been issues with transport Couriers to Brisbane
Torrens Creek	Terbutryn	4 times a year	9	400	0	There have been issues with transport Couriers to Brisbane
Prairie	Trifluralin	4 times a year	9	90	0	There have been issues with transport Couriers to Brisbane
Hughenden	Aldrin	4 times a year	9	0.3	0	There have been issues with transport Couriers to Brisbane
Torrens Creek	Chlordane cis	4 times a year	9	2	0	There have been issues with transport Couriers to Brisbane
Prairie	Total Chlordane	4 times a year	9	2	0	There have been issues with transport Couriers to Brisbane
Hughenden	Chlordane trans	4 times a year	9	2	0	There have been issues with transport Couriers to Brisbane
Torrens Creek	Dieldrin	4 times a year	9	0.3	0	There have been issues with transport Couriers to Brisbane
Prairie	<alpha>-Endosulfan	4 times a year	9	20	0	There have been issues with transport Couriers to Brisbane
Hughenden	<beta>-Endosulfan	4 times a year	9	20	0	There have been issues with transport Couriers to Brisbane
Torrens Creek	Endosulfan sulfate	4 times a year	9	20	0	There have been issues with transport Couriers to Brisbane
Prairie	Heptachlor	4 times a year	9	0.3	0	There have been issues with transport Couriers to Brisbane
Hughenden	Heptachlor epoxide	4 times a year	9	0.3	0	There have been issues with transport Couriers to Brisbane
Torrens Creek	Lindane (<gamma>-HCH)	4 times a year	9	10	0	There have been issues with transport Couriers to Brisbane
Prairie	Methoxychlor	4 times a year	9	300	0	There have been issues with transport Couriers to Brisbane
Hughenden	DDT (op)	4 times a year	9	9	0	There have been issues with transport Couriers to Brisbane
Torrens Creek	Oxychlordane	4 times a year	9	2	0	There have been issues with transport Couriers to Brisbane
Prairie	DDD (pp)	4 times a year	9	9	0	There have been issues with transport Couriers to Brisbane
Hughenden	DDE (pp)	4 times a year	9	9	0	There have been issues with transport Couriers to Brisbane
Torrens Creek	DDT (pp)	4 times a year	9	9	0	There have been issues with transport Couriers to Brisbane
Prairie	Total Aldrin & Dieldrin	4 times a year	9	0.3	0	There have been issues with transport Couriers to Brisbane
Hughenden	Total DDT	4 times a year	9	9	0	There have been issues with transport Couriers to Brisbane
Torrens Creek	Total Endosulfan	4 times a year	9	20	0	There have been issues with transport Couriers to Brisbane

Prairie	Total Heptachlor	4 times a year	9	0.3	0	There have been issues with transport Couriers to Brisbane
Hughenden	Azinphos-methyl	4 times a year	9	30	0	There have been issues with transport Couriers to Brisbane
Torrens Creek	Bromophos-ethyl	4 times a year	9	10	0	There have been issues with transport Couriers to Brisbane
Prairie	Carbophenothion	4 times a year	9	0.5	0	There have been issues with transport Couriers to Brisbane
Hughenden	Chlorfenvinphos	4 times a year	9	2	0	There have been issues with transport Couriers to Brisbane
Torrens Creek	Chlorpyrifos	4 times a year	9	10	0	There have been issues with transport Couriers to Brisbane
Prairie	Diazinon	4 times a year	9	4	0	There have been issues with transport Couriers to Brisbane
Hughenden	Dichlorvos	4 times a year	9	5	0	There have been issues with transport Couriers to Brisbane
Torrens Creek	Dimethoate	4 times a year	9	7	0	There have been issues with transport Couriers to Brisbane
Prairie	Disulfoton	4 times a year	9	4	0	There have been issues with transport Couriers to Brisbane
Hughenden	Ethion	4 times a year	9	4	0	There have been issues with transport Couriers to Brisbane
Torrens Creek	Ethoprophos	4 times a year	9	1	0	There have been issues with transport Couriers to Brisbane
Prairie	Fenamiphos	4 times a year	9	0.5	0	There have been issues with transport Couriers to Brisbane
Hughenden	Fenitrothion	4 times a year	9	7	0	There have been issues with transport Couriers to Brisbane
Torrens Creek	Fenthion (methyl)	4 times a year	9	7	0	There have been issues with transport Couriers to Brisbane
Prairie	Malathion (Maldison)	4 times a year	9	70	0	There have been issues with transport Couriers to Brisbane
Hughenden	Methidathion	4 times a year	9	6	0	There have been issues with transport Couriers to Brisbane
Torrens Creek	Mevinphos	4 times a year	9	5	0	There have been issues with transport Couriers to Brisbane
Prairie	Monocrotophos	4 times a year	9	2	0	There have been issues with transport Couriers to Brisbane
Hughenden	Omethoate	4 times a year	9	1	0	There have been issues with transport Couriers to Brisbane
Torrens Creek	Parathion (ethyl)	4 times a year	9	20	0	There have been issues with transport Couriers to Brisbane
Prairie	Parathion-methyl	4 times a year	9	0.7	0	There have been issues with transport Couriers to Brisbane
Hughenden	Pirimiphos-methyl	4 times a year	9	90	0	There have been issues with transport Couriers to Brisbane
Torrens Creek	Profenofos	4 times a year	9	0.3	0	There have been issues with transport Couriers to Brisbane

Prairie	Pyrazophos	4 times a year	9	20	0	There have been issues with transport Couriers to Brisbane
Hughenden	Sulprofos	4 times a year	9	10	0	There have been issues with transport Couriers to Brisbane
Torrens Creek	Temephos	4 times a year	9	400	0	There have been issues with transport Couriers to Brisbane
Prairie	Terbufos	4 times a year	9	0.9	0	There have been issues with transport Couriers to Brisbane
Hughenden	Tetrachlorvinphos	4 times a year	9	100	0	There have been issues with transport Couriers to Brisbane
Torrens Creek	Total Dimethoate	4 times a year	9	7	0	There have been issues with transport Couriers to Brisbane
Prairie	Captan	4 times a year	9	400	0	There have been issues with transport Couriers to Brisbane
Hughenden	Carbaryl	4 times a year	9	30	0	There have been issues with transport Couriers to Brisbane
Torrens Creek	Fipronil	4 times a year	9	0.7	0	There have been issues with transport Couriers to Brisbane
Prairie	Piperonyl butoxide	4 times a year	9	600	0	There have been issues with transport Couriers to Brisbane
Hughenden	Pirimicarb	4 times a year	9	7	0	There have been issues with transport Couriers to Brisbane
Torrens Creek	Propargite	4 times a year	9	7	0	There have been issues with transport Couriers to Brisbane
Prairie	Propiconazole	4 times a year	9	100	0	There have been issues with transport Couriers to Brisbane
Hughenden	Total Triadimefon	4 times a year	9	90	0	There have been issues with transport Couriers to Brisbane
Torrens Creek	Triadimefon	4 times a year	9	90	0	There have been issues with transport Couriers to Brisbane
Prairie	Bioresmethrin	4 times a year	9	100	0	There have been issues with transport Couriers to Brisbane
Hughenden	Cyfluthrin	4 times a year	9	50	0	There have been issues with transport Couriers to Brisbane
Torrens Creek	Cypermethrin	4 times a year	9	200	0	There have been issues with transport Couriers to Brisbane
Prairie	Deltamethrin	4 times a year	9	40	0	There have been issues with transport Couriers to Brisbane
Hughenden	Fenvalerate	4 times a year	9	60	0	There have been issues with transport Couriers to Brisbane
Torrens Creek	Permethrin	4 times a year	9	200	0	There have been issues with transport Couriers to Brisbane
Prairie	2,4,5-T	4 times a year	9	100	0	There have been issues with transport Couriers to Brisbane
Hughenden	Carbendazim	4 times a year	9	90	0	There have been issues with transport Couriers to Brisbane
Torrens Creek	Dimethoate	4 times a year	9	7	0	There have been issues with transport Couriers to Brisbane

Prairie	Methomyl	4 times a year	9	20	0	There have been issues with transport Couriers to Brisbane
Hughenden	Triclopyr	4 times a year	9	20	0	There have been issues with transport Couriers to Brisbane
Torrens Creek	2,4-D	4 times a year	9	30	0	There have been issues with transport Couriers to Brisbane
Prairie	2,4-DP (Dichlorprop)	4 times a year	9	100	0	There have been issues with transport Couriers to Brisbane
Hughenden	Ametryn	4 times a year	9	70	0	There have been issues with transport Couriers to Brisbane
Torrens Creek	Asulam	4 times a year	9	70	0	There have been issues with transport Couriers to Brisbane
Prairie	Atrazine	4 times a year	9	20	0	There have been issues with transport Couriers to Brisbane
Hughenden	Bromacil	4 times a year	9	400	0	There have been issues with transport Couriers to Brisbane
Torrens Creek	Bromoxynil	4 times a year	9	10	0	There have been issues with transport Couriers to Brisbane
Prairie	Chlorpyrifos	4 times a year	9	10	0	There have been issues with transport Couriers to Brisbane
Hughenden	Dalapon (2,2-DPA)	4 times a year	9	500	0	There have been issues with transport Couriers to Brisbane
Torrens Creek	Diazinon	4 times a year	9	4	0	There have been issues with transport Couriers to Brisbane
Prairie	Dicamba	4 times a year	9	100	0	There have been issues with transport Couriers to Brisbane
Hughenden	Diuron	4 times a year	9	20	0	There have been issues with transport Couriers to Brisbane
Torrens Creek	Fipronil	4 times a year	9	0.7	0	There have been issues with transport Couriers to Brisbane
Prairie	Fipronil Desulfinyl	4 times a year	9	0.7	0	There have been issues with transport Couriers to Brisbane
Hughenden	Fipronil sulfide	4 times a year	9	0.7	0	There have been issues with transport Couriers to Brisbane
Torrens Creek	Fipronil sulfone	4 times a year	9	0.7	0	There have been issues with transport Couriers to Brisbane
Prairie	Flamprop-methyl	4 times a year	9	4	0	There have been issues with transport Couriers to Brisbane
Hughenden	Fluometuron	4 times a year	9	70	0	There have been issues with transport Couriers to Brisbane
Torrens Creek	Haloxyfop (acid)	4 times a year	9	1	0	There have been issues with transport Couriers to Brisbane
Prairie	Hexazinone	4 times a year	9	400	0	There have been issues with transport Couriers to Brisbane
Hughenden	Imazapyr	4 times a year	9	9000	0	There have been issues with transport Couriers to Brisbane
Torrens Creek	MCPA	4 times a year	9	40	0	There have been issues with transport Couriers to Brisbane

Prairie	Metolachlor	4 times a year	9	300	0	There have been issues with transport Couriers to Brisbane
Hughenden	Metribuzin	4 times a year	9	70	0	There have been issues with transport Couriers to Brisbane
Torrens Creek	Metsulfuron methyl	4 times a year	9	40	0	There have been issues with transport Couriers to Brisbane
Prairie	Molinate	4 times a year	9	4	0	There have been issues with transport Couriers to Brisbane
Hughenden	Napropamide	4 times a year	9	400	0	There have been issues with transport Couriers to Brisbane
Torrens Creek	Pendimethalin	4 times a year	9	400	0	There have been issues with transport Couriers to Brisbane
Prairie	Picloram	4 times a year	9	300	0	There have been issues with transport Couriers to Brisbane
Hughenden	Propachlor	4 times a year	9	70	0	There have been issues with transport Couriers to Brisbane
Torrens Creek	Simazine	4 times a year	9	20	0	There have been issues with transport Couriers to Brisbane
Prairie	Terbuthylazine	4 times a year	9	10	0	There have been issues with transport Couriers to Brisbane
Hughenden	Terbutryn	4 times a year	9	400	0	There have been issues with transport Couriers to Brisbane
Torrens Creek	Total Acetamiprid	4 times a year	9	20	0	There have been issues with transport Couriers to Brisbane
Prairie	Total Diuron	4 times a year	9	20	0	There have been issues with transport Couriers to Brisbane
Hughenden	Total Fipronil	4 times a year	9	0.7	0	There have been issues with transport Couriers to Brisbane

Table 5 Verification Monitoring Chemical

Scheme	Parameter	No. of sample required to be collected (as per approved DWQMP)	Total number of samples collected and tested	ADWG Health Value	No. of non-compliant samples	Comments
Hughenden Torrens Creek Prairie	pH	4 per year	67		0	
Hughenden Torrens Creek Prairie	Electrical Conductivity	4 per year	67		0	
Hughenden Torrens Creek Prairie	Turbidity	4 per year	67		0	
Hughenden Torrens Creek Prairie	Colour, True	4 per year	67		0	
Hughenden Torrens Creek Prairie	Alkalinity	4 per year	67		0	
Hughenden Torrens Creek Prairie	Calcium	4 per year	67		0	
Hughenden Torrens Creek	Calcium, soluble	4 per year	67		0	

Prairie						
Hughenden Torrens Creek Prairie	Magnesium	4 per year	67		0	
Hughenden Torrens Creek Prairie	Magnesium, soluble	4 per year	67		0	
Hughenden Torrens Creek Prairie	Sodium	4 per year	67		0	
Hughenden Torrens Creek Prairie	Sodium, soluble	4 per year	67		0	
Hughenden Torrens Creek Prairie	Potassium	4 per year	67		0	
Hughenden Torrens Creek Prairie	Potassium, soluble	4 per year	67		0	
Hughenden Torrens Creek Prairie	Aluminium	4 per year	67		0	
Hughenden Torrens Creek Prairie	Aluminium, soluble	4 per year	67		0	
Hughenden Torrens Creek Prairie	Boron	4 per year	67	4	0	

Hughenden Torrens Creek Prairie	Boron, soluble	4 per year	67	4	0	
Hughenden Torrens Creek Prairie	Iron	4 per year	67		0	
Hughenden Torrens Creek Prairie	Iron, soluble	4 per year	67		0	
Hughenden Torrens Creek Prairie	Manganese	4 per year	67	0.5	0	
Hughenden Torrens Creek Prairie	Manganese, soluble	4 per year	67	0.5	0	
Hughenden Torrens Creek Prairie	Copper	4 per year	67		0	
Hughenden Torrens Creek Prairie	Copper, soluble	4 per year	67		0	
Hughenden Torrens Creek Prairie	Zinc	4 per year	67		0	
Hughenden Torrens Creek Prairie	Zinc, soluble	4 per year	67		0	
Hughenden	Ammonia as N	4 per year	67		0	

Torrens Creek Prairie						
Hughenden Torrens Creek Prairie	Oxidised Nitrogen as NOx-N	4 per year	67		0	
Hughenden Torrens Creek Prairie	Nitrite as N	4 per year	67	3	0	
Hughenden Torrens Creek Prairie	Nitrate as N, Calc	4 per year	67	50	0	
Hughenden Torrens Creek Prairie	Phosphate as P	4 per year	67		0	
Hughenden Torrens Creek Prairie	Silica as SiO2	4 per year	67	0.01	0	
Hughenden Torrens Creek Prairie	Chloride	4 per year	67		0	
Hughenden Torrens Creek Prairie	Sulfate	4 per year	67		0	
Hughenden Torrens Creek Prairie	Fluoride	4 per year	67	1.5	0	
Hughenden Torrens Creek	Arsenic	4 per year	67	0.01	0	

Prairie						
Hughenden Torrens Creek Prairie	Cadmium	4 per year	67	0.002	0	
Hughenden Torrens Creek Prairie	Chromium	4 per year	67	0.05	0	
Hughenden Torrens Creek Prairie	Lead	4 per year	67	0.01	1 - 03/05/2022 Hughenden	Lead non-compliant sample was not reported to the Regulator as it ws discovered during review of water quality data for this report. The lab reported that the samples had breached the maximum holding time. Technical Officer will ask la to flag samples that are non-compliant in case they are missed during review/.
Hughenden Torrens Creek Prairie	Mercury	4 per year	67	0.001	0	
Hughenden Torrens Creek Prairie	Nickel	4 per year	67	0.02	0	
Hughenden Torrens Creek Prairie	Bicarbonate	4 per year	67		0	
Hughenden Torrens Creek Prairie	Carbonate	4 per year	67		0	
Hughenden	Hydroxide	4 per year	67		0	

Torrens Creek Prairie						
Hughenden Torrens Creek Prairie	Hardness	4 per year	67		0	
Hughenden Torrens Creek Prairie	Sodium Adsorption Ratio*	4 per year	67		0	
Hughenden Torrens Creek Prairie	Residual alkali*	4 per year	67		0	
Hughenden Torrens Creek Prairie	Aggressive Index*	4 per year	67		0	
Hughenden Torrens Creek Prairie	Langlier Saturation Index	4 per year	67		0	
Hughenden Torrens Creek Prairie	pHs at 25C	4 per year	67		0	
Hughenden Torrens Creek Prairie	Total Dissolved Solids by EC	4 per year	67		0	
Hughenden Torrens Creek Prairie	Total Cations, mg/L	4 per year	67		0	
Hughenden Torrens Creek	Total Anions, mg/L	4 per year	67		0	

Prairie						
Hughenden Torrens Creek Prairie	Total Cations, meq/L	4 per year	67		0	
Hughenden Torrens Creek Prairie	Total Anions, meq/L	4 per year	67		0	
Hughenden Torrens Creek Prairie	Ionic Balance, %	4 per year	67		0	
Hughenden Torrens Creek Prairie	Total Alpha	2 per year	15	Screening value: 0.5Bq/L	0	
Hughenden Torrens Creek Prairie	Total Beta	2 per year	15	Screening value: 0.5Bq/L	0	
Hughenden Torrens Creek Prairie	Chlorates	Monthly	50	Qld Health: 800µg	8 - 27/07/2022 (Torrens Creek)	Incident reported regulator and is now closed.
Hughenden Torrens Creek Prairie	THM	Monthly	47	0.25 mg/L	0	

Table 6. E. coli compliance with annual value

Drinking water scheme: Hughenden

Year	***2021 to 2022***											
Month	***July***	***Aug***	***Sept***	***Oct***	***Nov***	***Dec***	***Jan***	***Feb***	***Mar***	***Apr***	***May***	***Jun***
No. of samples collected	18	12	18	12	30	18	18	18	30	18	30	24
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
No. of samples collected in previous 12 month period	411	419	413	407	389	329	288	264	266	256	252	246
No. of failures for previous 12 month period	1	0	0	0	0	0	0	0	0	0	0	0
% of samples that comply	99.8%	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

Drinking water scheme: Prairie

Year	*2021 to 2022*											
Month	*July*	*Aug*	*Sept*	*Oct*	*Nov*	*Dec*	*Jan*	*Feb*	*Mar*	*Apr*	*May*	*Jun*
No. of samples collected	2	2	2	2	2	2	2	2	2	2	2	2
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	24	24	24	24	24	24	24	24	24	24	24	24
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

Drinking water scheme: Torrens Creek

Year	*2021 to 2022*											
Month	*July*	*Aug*	*Sept*	*Oct*	*Nov*	*Dec*	*Jan*	*Feb*	*Mar*	*Apr*	*May*	*Jun*
No. of samples collected	2	2	2	2	2	2	2	2	2	2	2	2
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	24	24	24	24	24	24	24	24	24	24	24	24
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

5 Incidents reported to the regulator

The incidents reported to the regulator and management actions undertaken over the financial year are provided in this section.

Table 7 – Incidents reported to the regulator

Incident date	Scheme / location	Parameter / issue	Preventive actions
21/07/2021	Hughenden	Chlorates	Council to use freshest chemical as possible. Receival dates to be included on Chemical when it arrives, ask supplier for the date of manufacture (if possible). Store chlorine in as cool as place as possible. Test hypo for chlorate concentrations
21/07/2021	Torrens Creek	Chlorates	Council to use freshest chemical as possible. Receival dates to be included on Chemical when it arrives, ask supplier for the date of manufacture (if possible). Store chlorine in as cool as place as possible. Test hypo for chlorate concentrations.

6 Customer complaints

This section discusses details of any complaints received about the drinking water service

Refer to section 2.3.6 in the Guidance Note.

Table 8 – customer complaints about water quality

Scheme	Health concern	Dirty water	Taste and odour	Other
Hughenden	0	6	0	6

Dirty Water

The Dirty water complaints were a result of several burst water mains and the increase in chlorination in the township. Council continually flushed the reticulation mains during this time and daily chlorine sampling occurred. Disinfection levels were also increased and regularly monitored. Like the previous year, customers were advised of the reasons for the dirty water and were asked to report instances of dirty water to the plumber to enable a targeted flushing program.

Other

Complaints regarding excess water bills and lack of water pressure are included in this category.

7 DWQMP review outcomes

The review was completed in May 2022.

Areas to consider	Action required?	Status of actions	Who will action?
Service Description • **Have any of the service provider contact details changed?**	Update sections 1.4 & 1.5 New CEO, change contact details for DOE, Town Foreman is now Senior Operational Works Coordinator. Overseer position now Senior Civil works Coordinator. EHO now Technical Officer. New maps Pgs. 10,11, and 12.	In Flinders Shire Council is working with the Water supply regulators to amend the current DWQMP so that it accurately reflects the Water supply system, operations and reporting.	Tech Officer
• **Do the scheme details still apply?**	Hughenden - Update section 4.1, Figures 4.1 & 4.2, Table 4.1. Update sampling points. Prairie - Update section 4.2, Figures 4.3 &4.4 and Table.2. Prairie has a 3rd tank. Torrens Creek is the only scheme with a WTP, Hughenden and Prairie only disinfect. Update Torrens Creek sampling points.		

• **Have the number of communities service changed?** • **Has the population size changed?** • **Have the number of connections changed?** • **Is the design capacity sufficient for population projections?** • **Stakeholders.**	Hughenden now has new reservoir plus Sodium Hypo injection system. How and when FSC contact them would be useful. This could be a separate spreadsheet to make it easier to update.		
Details of Infrastructure used for providing the service • **Do the schematics accurately reflect all the components, processes, and linkages, from catchment to consumer?** • **Do any of the system description details require updating?** • **Have new chemicals been introduced into the treatment process or the dosing points re-located?** • **Have monitoring and telemetry systems been checked and/or changed?**	Hughenden and Prairie Schemes need to be updated. As Above As Above As Above As Above		Tech officer

• **Have low pressure areas in the distribution system changed?** • **Has a reservoir undergone refurbishment?** • **Have there been changes in the key stakeholders or engagement process?** • **Have there been any problems with infrastructure or equipment breakdown or deterioration?** • **Other**	Will keep high level descriptions at section 4 and then a separate document for each scheme with schematic, water quality data. monitoring points, chlorination targets etc. These could be updated as required and would be more accessible for operational staff.		
Information gathering on water quality and catchment characteristics **Water quality data should be collated, analysed, and trended, including for source water, treatment process steps and distribution.** • **Have there been changes to the source water quality or characteristics?** • **Have there been any changes to the output quality?** • **Does water quality data indicate that the level of risk has changed for certain hazards?** • **Has operational monitoring data identified any poorly functioning treatment processes?** • **Has there been any significant development or land use changes in the catchment?** • **Has the nature or frequency of any water quality complaints changed?** • **Has there been any occurrence of suspected illness following a customer complaint about water quality?**	Testing for Chlorates and THMs in Hughenden Water supply Also need to increase testing of River well in Torrens Creek.		Tech Officer

Hazard identification • **Have the personnel (position) responsible for hazard identification and risk assessment changed?** • **Have any new or emerging hazards or hazardous events been identified?**	New staff Chlorates, THMs		Tech Officer
Assessment of risks • **Is the risk assessment methodology still considered appropriate?** • **Have new risk management strategies been implemented?** • **Do any new risk management strategies require new assessment of residual risk?** • **Has an acceptable, residual risk level been clearly defined?**	Introduction of Sodium Hypo into Hughenden scheme, chlorates, THMs. Update table 6.2 – new Safety Officer will be added to team. Review Table 6.7 with new Risk Management team.		
Risk management measures • **Have the existing risk management strategies achieved desired water quality outcomes?** • **Has the effectiveness of any new risk management strategies or infrastructure upgrades been evaluated?**	A Hazard identification and Risk Management workshop will be held to update this are		Water and Sewerage team
Operation and maintenance procedures • **Do the procedures and practices reflect current operations?** • **Is there a need to create new operation and maintenance procedures?** • **Have records related to associated procedures been kept?** • **Have training records been maintained?**	A workshop with the Water and sewerage team will address this part of the plan. The new DOE will have started work and can also assist.		Water and sewerage team.

• **Is training appropriate to the system, as it currently exists?** • **Is the process for managing drinking water incidents and emergencies still appropriate for the drinking water service?** • **Do internal and external communication process and protocols work effectively?** • **Is the list of people to be contacted during emergencies up to date?** • **Is staff training for incidents and emergencies up to date?** • **Have incident and excursion records identified changes in risks and hazards?**			
Risk management improvement program (RMIP) Review status of actions in the improvement program. • **Were actions in the program completed in the timeframe outlined in the RMIP?** • **Did the program outlined in the DWQMP achieve the intended outcomes?** • **Does the program require updating to manage risks effectively, including measures for newly identified risks?** • **Are all unacceptable risks included in the RMIP and do all of these risks have a remedial action item and completion date?**	Plan to be moved into a separate spreadsheet so Ip's can be tracked easily. Ip's require updating, new IP's to be added from Risk assessment.		
Service-wide support information management • **Are staff using current versions of documents?** • **Are the information management, record keeping and reporting processes being used appropriately?**	Plan needs to be more user friendly.		

Operational monitoring • **Have changes to the infrastructure or process resulted in a need to revise the monitoring program?** • **Are the range and frequency of parameters being tested appropriate?** • **Are the established corrective actions and controls actively applied as in the DWQMP and still appropriate?** • **Have monitoring records been maintained?** • **Are monitoring equipment being calibrated?**	New Critical Control points required. Additional in – house operational monitoring required (pH).		
Verification monitoring • **Have changes to the infrastructure resulted in a need to revise the monitoring program?** • **Are the range and frequency of parameters being tested appropriate?** • **Are the established corrective actions and regulator notifications actively applied as described in the DWQMP?** • **Are the corrective actions and notifications still appropriate?** • **Have monitoring records been maintained?** • **Have ADWG health guideline values changed for any parameters?** • **Have the arrangements for monitoring, transport arrangement for off-site analysis, or testing laboratory changed?**	Samples are now sent to Townsville lab as well as Brisbane as samples have been lost in transit to Brisbane. Verification parameters need to be updated to reflect these changes.		
Other areas • **Have there been any changes in regulations, legislation or formal requirements?**	Refer to audit		

• **Have there been organisational structure changes that may impact on risk management?** • **Are critical personnel appropriately qualified or require additional training?** • **Do the audit outcomes recommend changes to the DWQMP or related processes?** Additional Items • **Water quality limits in the DWQMP need to be consistent with ADWG and appropriate actions set for alert and critical limits. Turbidity and pH monitoring conducted in all schemes concurrently with free chlorine. Sample taps not representative or no longer used should be removed from DWQMP. Torrens Creek River Well should be sampled more often to build data. Remove references to WTP at Hughenden and Prairie as no WTP exists.** • **Update DWQMP to outline two separate reporting processes for use of River Well, one for planned and one for unplanned use.**			