Drinking Water Quality Management Plan

Annual report

2024-2025

LAKELAND



Cook Shire Council

SPID: 511

10 Furneaux St

Cooktown, Qld, 4895

07 4069 5444

mail@cook.qld.gov.au

Glossary of terms

ADWG 2011	Australian Drinking Water Guidelines . Published by the National Health and Medical Research Council of Australia
DWQMP	Drinking Water Quality Management Plan
E. coli	*Escherichia coli*, a bacterium which is considered to indicate the presence of faecal contamination and therefore potential health risk
mg/L	Milligrams per litre
µg/L	Micrograms per litre
NTU	Nephelometric Turbidity Units
HU	Hazen units
µS/cm	Micro Siemens per centimetre
MPN/100mL	Most probable number per 100 millilitres
CFU/100mL	Colony forming units per 100 millilitres
<	Less than
>	Greater than
NATA Lab	Accredited by the National Association of Testing Authorities of Australia. Cook Shire Council currently uses the Cairns Regional Council Laboratory as its NATA registered Lab.
CCP's	Critical Control Point
RMIP	Risk Management Improvement Program

COOK SHIRE COUNCIL
DRINKING WATER QUALITY MANAGEMENT PLAN ANNUAL REPORT
LAKELAND

Table of Contents

1. Introduction 4
2. Overview of Operations 4
3. Actions taken to implement the DWQMP 4
4. Compliance with water quality criteria for drinking water 6

Table 1: Location of sampling sites within Lakeland's water reticulation network. 6

5. Notifications to the Regulator 6
6. Customer complaints related to water quality 6
7. DWQMP review outcomes 7
8. DWQMP audit findings 7

Appendix A – Summary of compliance with water quality criteria 8

Table 2A: Lakeland Reticulation – Physical Chemical (NATA Lab) 8
Table 2B: Lakeland Reticulation – E.coli (CSC Annan WTP Lab plus NATA verification) 9
Table 2C: Lakeland Reticulation – Physical Chemical – (CSC Annan WTP Lab) 10
Table 2D: Lakeland Reticulation – Trihalomethanes and Chlorates (NATA Lab) 10
Table 3A: Lakeland Treated Water Final – Free Chlorine 11
Table 3B: Lakeland Treated Water Final – E.coli monitoring (CSC Annan WTP Lab plus NATA verification) 11
Table 4A: Lakeland Raw Water - Physical Chemical (NATA Analysed) 12
Table 4B: Lakeland Raw Water – E.coli monitoring (CSC Annan WTP Lab) 13
Table 4C: Laura Raw Water – Radionuclides 13
Table 4D: Lakeland Raw Water – Pesticide Results (NATA Lab) 14
Table 5: Reticulation *E. coli* 12 Month Rolling Average 15

COOK SHIRE COUNCIL
DRINKING WATER QUALITY MANAGEMENT PLAN ANNUAL REPORT
LAKELAND

1. Introduction

This is the Drinking Water Quality Management Plan (DWQMP) report for Cook Shire Council for the financial year 2024-2025 for the Lakeland Water Scheme.

Cook Shire Council is a registered service provider with identification (SPID) number 511. Cook Shire Council 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 risks associated with drinking water.

The DWQMP Annual 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.

Lakeland has been identified as a potential growth area due to the fertile agricultural land around the town. The suggested Palmer River Dam which will provide water to Lakeland for irrigation may lead to further growth in the town. Cook Shire Council is undertaking a future planning study for Lakeland including water and wastewater. This will include small, medium and large growth scenarios.

2. Overview of Operations

Lakeland's Water was sourced from 3 bores, 2 located within the Lakeland Compound (1/RP741362) (East and West Bore) and the 3rd being Army bore which is situated on the road reserve on the Peninsular Development Road.

Water is pumped from the East and West bores to a ground level Reservoir and is chlorinated. Three pressure pumps are used to maintain pressure within the reticulation system. Army Bore is used as a backup bore if required. In the 2024/2025 financial year, Army Bore and West Bore were in operation. This is due to a new sodium hypochlorite building being built at the Lakeland water compound which resulted in East Bore being electrically disconnected.

Lakeland currently has 44 water connections:

- Residential 61%
- Commercial 14%
- Industrial 14%
- Council 9%
- Institutional 2%

3. Actions taken to implement the DWQMP

Water and Wastewater department staff meet fortnightly to discuss the department's operational issues. This provided an opportunity to refer to the approved DWQMP and emphasise the importance of using the plan. These meetings are chaired by the Manager of Water and Wastewater and the Team Leader.

COOK SHIRE COUNCIL
DRINKING WATER QUALITY MANAGEMENT PLAN ANNUAL REPORT
LAKELAND

Cook Shire Council adopted the Drinking Water Quality Policy in September 2019. This policy confirms Councils management of water quality through the on-going implementation of the DWQMP.

Standard Operating Procedures were updated in the 2024. Training of staff in procedures is on-going. Individual actions taken for the Lakeland Water Scheme are listed in the table below.

Capital funding applications are submitted to Council each year, however are not always successful. This can cause delays in delivering Councils Risk Management Improvements.

Scheme	Component	Improvement Action and Origin of Action	Target Date	Actions undertaken to date	Status and revised target date	Responsible officer
Lakeland	Reticulation	Chlorate Sampling	On-going	No chlorate detected above 0.8 mg/L. New chlorine shed finalized August 2025.	Shed complete	Manager/Coordinator Water and wastewater
Lakeland	Reticulation	Pesticides	On-going	Continue to monitor pesticides. Not pesticides detected.	On-going	Manager/Coordinator Water and wastewater
Lakeland	Reticulation	Water meter replacement	June 2025	Replace meters that are 15 years old. Meters not replaced in the 24/25 financial year as Council is looking at the option of Smart meters.	Not done this year. Will be included in 2026 list.	Manager/Coordinator Water and wastewater
Lakeland	Cybersecurity	Cybersecurity Strategy	June 2026	Analysis of critical spares both mechanical and electrical and cybersecurity risks and response plan is being created	Analysis of cybersecurity risk and critical spares workshop has been held. Target date for completion is June 2026	Manager Water, Waste Wastewater/IT Manager
Lakeland	Reticulation	Valve and hydrant and water main replacement	June 2027	630m of Water main replaced in Lakeland including 6 new hydrants and 2 valves	Additional valves and hydrants to be replaced. Completion date of June 2027	Manager/Coordinator Water and wastewater

4. Compliance with water quality criteria for drinking water

All drinking water in Lakeland met the recommended values in the Australian Drinking Water Guidelines and the Public Health Regulation.

The following results for Lakeland are in Appendix A:

Table 2A: Lakeland Reticulation – Physical Chemical (NATA Lab)
Table 2B: Lakeland Reticulation – E. coli (CSC Lab and NATA verification)
Table 2C: Lakeland Reticulation – Physical Chemical including free chlorine – (CSC Annan WTP Lab)
Table 2D: Lakeland Reticulation – Trihalomethanes and chlorates (NATA Lab)
Table 3A: Lakeland Treated Water Final – Free Chlorine – (CSC Annan WTP Lab and online analyser)
Table 3B: Lakeland Treated Water Final – E.coli (CSC Annan WTP plus NATA verification)
Table 4A: Lakeland Raw Water - Physical Chemical (NATA Lab)
Table 4B: Lakeland Raw Water – E.coli monitoring (CSC Annan WTP Lab)
Table 4C: Lakeland Raw Water – Radionuclides (NATA Lab)
Table 4D: Lakeland Raw Water – Pesticide Results (NATA Lab)
Table 5: Reticulation E. coli 12 Month Rolling Average

Note: results do not show < signs as SWIM reports do not recognize or count the result.

Table 1: Location of sampling sites within Lakeland's water reticulation network.

Sample Location Name	Street Name	Site Chosen Because	GPS Coordinates *
SES	Peninsular Development Road	Towards the end of the line	15°51'42.27"S - 144°51'21.53"E
MRD Depot	Cooktown Development Road	Ease of access, Central	15°51'32.22"S - 144°51'27.84"E
Lakeland Library	Sesame Street	Ease of access, Central	15°51'31.05"S - 144°51'18.66"E
Wash Down Bay	Peninsular Development Road	End of the Line	15°51'49.78"S - 144°51'28.11"E
Lakeland Lodge	Back Street	Northern end of Town	15°51'23.10"S - 144°51'19.75"E

All reticulation sampling for all parameters are collected from these fixed sites for the reasons listed.

5. Notifications to the Regulator

There were no incidents reported to the regulator in the 2024-2025 financial year.

6. Customer complaints related to water quality

There were no water quality complaints in the 2024-2025 financial year.

7. DWQMP review outcomes

No amendments were made in the 2024/2025 financial years to the Lakeland DWQMP.

8. DWQMP audit findings

An audit of Cook Shires drinking water schemes was due in the 2024/2025 financial year. Lakeland was one of the sites audited. Council was compliant with all areas of the audit. Items to consider for the Lakeland water scheme included:

- Defining a formal wellhead protection zone for the bores and formalising inspection and enforcement relating to sewerage infrastructure within the zone, and/or verifying the security of the groundwater at the abstraction depth to prevent transfer of low water age surface water.
- Additional sealing of entry points on the Lakeland bores (however, the bore in question was an old bore that is no longer in use and the pump has been removed).

Appendix A – Summary of compliance with water quality criteria

Table 2A: Lakeland Reticulation – Physical Chemical (NATA Lab)

Date Sampled – 01/07/2024 – 30/06/2025									
Parameter	Unit	No of samples required to be collected	No of Samples collected	Summary of Results			ADWQ Guidelines Value	No of Samples exceeding ADWG	
				Min. Value	Max. Value	Avg. Value		Health	Aesthetic
Colour	HU	4	4	0.0	1.2	0.8	< 15 HU	-	0
Electrical Conductance	µS/cm	4	4	600.0	610.0	605.0	-	-	-
pH	pH units	4	4	7.60	7.90	7.78	6.5-8.5	-	0
Salinity	mg/L	4	4	290.0	297.0	293.8	-	-	-
Silicon	mg/L	4	4	81.0	83.0	81.8	<100 mg/L	-	-
Total Hardness	mg/L as CaCO3	4	4	180.0	190.0	187.5	< 200 mg/L	-	0
Turbidity	NTU	4	4	0.1	0.4	0.2	< 5 NTU	-	0

Table 2B: Lakeland Reticulation – E.coli (CSC Annan WTP Lab plus NATA verification)

Date Sampled – 01/07/2024 – 30/06/2025							
	Parameter	**Sampling Location**	**No of samples required to be taken**	**No of samples taken**	**No of samples with E.coli detected**	**Public Health Regulation standard (2018)**	**Laboratory**
E.coli and Coliforms	E.coli – MPN/100ml	5 set Locations within the Lakeland Reticulation (Table 1)	52	53	0	0	Annan WTP
E.coli and Coliforms	E. coli cfu/100ml		4	4	0	<1 CFU/100ml	Cairns Regional Council

Table 2C: Lakeland Reticulation – Physical Chemical – (CSC Annan WTP Lab)

Date Sampled – 01/07/2024 – 30/06/2025						
Parameter	**Unit**	**No of samples required to be collected**	**No of Samples collected**	**Summary of Results**		
				Min. Value	**Max. Value**	**Avg. Value**
Free chlorine residual	mg/L	12	12	0.41	0.79	0.55
Colour	mg/L	12	12	0.00	12.00	2.92
Electrical Conductivity	mg/L	12	12	552.0	619.0	587.7
pH	mg/L	12	12	6.80	7.50	6.99
Turbidity	mg/L	12	12	0.08	0.73	0.26
Alkalinity	mg/L	12	12	165.0	220.0	190.7

Table 2D: Lakeland Reticulation – Trihalomethanes and Chlorates (NATA Lab)

Date Sampled – 01/07/2024 – 30/06/2025								
Parameter	**Unit**	**No of Samples required to be collected**	**No of Samples collected**	**Summary of Results**			**ADWQ Guidelines Value**	**No of Samples exceeding ADWG**
				Min. Value	**Max. Value**	**Avg. Value**		**Health**
Chloroform	µg/L	4	4	<5	<5	<5	<250 µg/L	0
Bromodichloromethane	µg/L	4	4	<5	<5	<5	<250 µg/L	0
Dibromochloromethane	µg/L	4	4	<5	6	5	< 250 mg/L	0
Bromoform	µg/L	4	4	7	11	9	<250 µg/L	0
Total Trihalomethanes	µg/L	4	4	7	16	10	<250 µg/L	0
Chlorate	mg/L	4	4	0.207	0.369	0.236	<0.8 mg/L*	0

*QH provisional guideline.

Table 3A: Lakeland Treated Water Final – Free Chlorine

Date Sampled – 01/07/2024 – 30/06/2025									
Parameter	**Unit**	**No of samples required to be taken**	**No of Samples**	**Summary of Results**			**ADWQ Guidelines Value**	**No of Samples exceeding ADWG**	
				Min. Value	**Max. Value**	**Avg. Value**		**Health**	**Aesthetic**
Free Chlorine Residual (on line analyser)	*mg/L*	365	365	0.35	1.03	0.60	<5	0	-
Free Chlorine Residual (hand held analyser and recorded with E.coli results)	*Mg/L*	52	52	0.31	0.98	0.63	<5	0	-

Table 3B: Lakeland Treated Water Final – E.coli monitoring (CSC Annan WTP Lab plus NATA verification)

Date Sampled – 01/07/2024 – 30/06/2025							
	Parameter	**Sampling Location**	**No of samples required to be taken**	**No of samples taken**	**No of samples with E.coli detected**	**Public Health Regulation standard (2018)**	**Laboratory**
E.coli and Coliforms	E.coli – MPN/100ml	Lakeland Water Treatment Plant	52	53	0	0	Annan WTP
E.coli and Coliforms	E. coli cfu/100ml	Lakeland Water Treatment Plant	4	4	0	0	Cairns Regional Council

Table 4A: Lakeland Raw Water - Physical Chemical (NATA Analysed)

Date Sampled – 01/07/2024 – 30/06/2025						
Parameter	**Unit**	**No of Samples required to be collected**	**No of Samples collected**	**Summary of Results**		
				Min. Value	**Max. Value**	**Avg. Value**
Colour	HU	4	4	1.0	1.0	1.0
Electrical Conductance	µS/cm	4	4	580.0	600.0	595.0
pH	pH units	4	4	7.50	7.70	7.65
Salinity	psu	4	4	281.0	291.0	278.8
Silicon	mg/L	4	4	78.0	82.0	80.3
Total Hardness	mg/L as CaCO3	4	4	180.0	190.0	185.0
Turbidity	NTU	4	4	0.1	0.1	0.1

Table 4B: Lakeland Raw Water – E.coli monitoring (CSC Annan WTP Lab)

Date Sampled – 01/07/2024 – 30/06/2025							
	Parameter	**Sampling Location**	**Minimum**	**Maximum**	**Average**	**Number of samples taken**	**Laboratory**
E.coli and Coliforms	E.coli – MPN/100ml	Lakeland Bores (Raw)	0	101	6	53	Annan WTP

Table 4C: Laura Raw Water – Radionuclides

Date Sampled – 01/07/2024 – 30/06/2025			
Parameter	**Unit**	**No of Samples collected**	**Result**
Gross alpha	*Bq/L*	1	<0.05
Gross beta activity – 40K	*Bq/L*	1	>0.10

Table 4D: Lakeland Raw Water – Pesticide Results (NATA Lab)

LRN: 1451499 — *Date Sampled:* 06-05-2025 2:49pm

Lakeland - Army Bore — *Received at Lab:* 07-05-2025 09:07am

Method	Analyte	Result	LOR	Date Started
Organics				
500 Pesticides	4.4`-DDD	<0.5 µg/L		
Pesticides	4.4`-DDE	<0.5 µg/L		
Pesticides	4.4`-DDT	<2.0 µg/L		
Pesticides	Aldrin	<0.5 µg/L		
Pesticides	alpha-BHC	<0.5 µg/L		
Pesticides	alpha-Endosulfan	<0.5 µg/L		
Pesticides	beta-BHC	<0.5 µg/L		
Pesticides	beta-Endosulfan	<0.5 µg/L		
Pesticides	cis-Chlordane	<0.5 µg/L		
Pesticides	delta-BHC	<0.5 µg/L		
Pesticides	Dieldrin	<0.5 µg/L		
Pesticides	Endosulfan sulfate	<0.5 µg/L		
Pesticides	Endrin	<0.5 µg/L		
Pesticides	Endrin aldehyde	<0.5 µg/L		
Pesticides	Endrin ketone	<0.5 µg/L		
Pesticides	Heptachlor	<0.5 µg/L		
Pesticides	Heptachlor epoxide	<0.5 µg/L		
Pesticides	Hexachlorobenzene (HCB)	<0.5 µg/L		
Pesticides	Methoxychlor	<2.0 µg/L		
Pesticides	Sum of Aldrin + Dieldrin	<0.5 µg/L		
Pesticides	Sum of DDD + DDE + DDT	<0.5 µg/L		
Pesticides	trans-Chlordane	<0.5 µg/L		
Pesticides	Total Chlordane (sum)	<0.5 µg/L		
Pesticides	gamma-BHC - (Lindane)	<0.5 µg/L		

Pesticide scan done yearly from Army Bore.

Table 5: Reticulation *E. coli* 12 Month Rolling Average

Lakeland												
Year	***2024/2025***											
Month	***July***	***Aug***	***Sept***	***Oct***	***Nov***	***Dec***	***Jan***	***Feb***	***Mar***	***Apr***	***May***	***June***
No. of samples collected	5	4	4	5	4	5	4	4	5	4	4	5
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	51	52	52	51	52	52	52	53	53	53	53	53
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