

Drinking Water Quality Management Plan (DWQMP) report

For the financial year: 2017-2018

Scheme: COOKTOWN

Cook Shire Council

SPID: 511

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Glossary of terms

ADWG 2011	Australian Drinking Water Guidelines (2011). Published by the National Health and Medical Research Council of Australia
<i>E. coli</i>	<i>Escherichia coli</i> , 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

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1. Introduction

This is the Drinking Water Quality Management Plan (DWQMP) report for Cook Shire Council for the financial year 2017-2018 for the Cooktown 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 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. Overview of Operations

Cooktown's Water is sourced from the Annan River which originates high in the rainforest from the North and North western sides of Mount Misery, Poverty and Mt Romeo which is North North West of Bloomfield. The catchment area of approx. 37,350 ha is in pristine rainforest and has very limited human impact apart from the ex Collingwood Tin Mine.

Water is pumped up from the Annan River to the Treatment Plant site where it undertakes the following treatment processes:

- Coagulation & Flocculation
- Sedimentation
- Filtration
- Chlorination
- Fluoridation

The treated water is pumped to a 2ML Reservoir on site, and then gravity feeds to the Cooktown High Level Reservoir, in Cooktown, as required via telemetry signals. The Cooktown Reservoir directly supplies water to the Cooktown after being re-chlorinated.

Cooktown currently has 940 Service connections which can be broken down to approximately:

- Residential - 79%
- Commercial / Industrial - 11%
- With the remaining 10% being Government, Council, Institutional or Other

Cooktown's water has historically been a very safe and reliable water supply and given its origins in the rainforest is also pleasant tasting as well. Cooktown's water won the Queensland Water Directorate's "Best Tasting Tap Water in Queensland" in 2013.

3. Actions taken to implement the DWQMP

Water and Wastewater department staff meet fortnightly to discuss the departments 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, Team Leader Treatment and Team Leader of Reticulation.

During the reporting period, 5 staff members completed a Certificate III in Water and Wastewater Operations. This included 2 reticulation staff, 1 Administration/Technical Officer and 2 Water and Wastewater Treatment Plant Operators. All Water and Wastewater Treatment Plant Operators have a Certificate III. Council will continue with Certificate III training for reticulation staff as it gives them a greater understanding of the importance of drinking water quality in their roles, they are responsible for sampling the water reticulation network and they can fill in at the Water and Wastewater Treatment Plants. Recruitment into Water and Wastewater Treatment Plant Operator positions can be difficult and training all staff allows a small Council such as Cook Shire Council recruit reticulation staff into these positions.

Revisions were made to the DWQMP in the 2016-2017 years and the plan was approved on the 19/07/2018. The sampling schedule was updated in 2018 to match the DWQMP sampling commitments.

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Scheme	Component	Improvement Action and Origin of Action	Target Date	Actions undertaken to date	Status and revised target date	Responsible officer
Cooktown	Annan Water Treatment Plant and Reticulation	Need to strengthen the data provided to the regulator (audit report 2017)	30 th June 2018	Procedure developed for compiling annual report. Reports generated in SWIM and saved.	Completed	Manager
Cooktown	Reticulation	Develop reticulation infrastructure maintenance records (audit report 2017)	30 th June 2018	Reservoir inspections, cleaning, mains flushing, bore inspections, service and mains repairs etc... are all captured using the SWIM database and Council hazard inspections	Completed	Manager
Cooktown	Annan Water Treatment Plant and Reticulation	Need to strengthen the data provided to the regulator (audit report 2017)	30 th June 2018	Procedure developed for compiling annual SWIM report. Reports generated in SWIM and saved.	Completed	Manager
Cooktown	Annan Water Treatment Plant	Establish, document and implement critical control points (CCPs) at the WTP (audit report 2017)	30 th June 2018	CCP's and operational procedures have been included in latest DWQMP amendments and implemented through SCADA controls and alarms through EDAC system	Completed	Manager
Cooktown	Reticulation	Develop procedure to flush on low chlorine residual in reticulation (RMIP)	30 th June 2018	Procedure has been developed.	Completed	Manager
Cooktown	Annan Water Treatment Plant and Reticulation	Procedures for Cooktown (RMIP)	30 th June 2018	Procedures for Cooktown are still in progress. 32 procedures are available for Cooktown Water treatment plant and reticulation system.	In Progress/on-going	Manager/Team Leader Reticulation
Cooktown	Reticulation	Replaced 80mm AC water mains in sections of Walker, Garden streets and all of Kerr Street.	30 th June 2018	Main replacement completed	Completed	Manager/Team Leader Reticulation
Cooktown	Annan Water Treatment Plant	Recoat concrete filters	30 th June 2018	Filters have been recoated with a drinking water approved coating	Completed	Manager/Team Leader Treatment
Cooktown	Reticulation	Temporary seal to stop Fire Station Reservoir leaking	30 th June 2018	Reservoir has temporary seal to stop leak. Reline of reservoir due in 2018/19 financial year	Completed	Manager/Team Leader Reticulation
Cooktown	Reticulation	Temporary seal to stop 4 Mile Reservoir leaking	30 th June 2018	Reservoir has temporary seal to try to stop leak. Reservoir needs replacing. Replacement reservoir due in 2018/19 financial year	In progress	Manager/Team Leader Reticulation

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Scheme	Component	Improvement Action and Origin of Action	Target Date	Actions undertaken to date	Status and revised target date	Responsible officer
Cooktown	Reticulation	Turbidity from resuspended lime in reservoir. Ladders for access broken. WH&S issue with cleaning reservoirs.	30 th June 2018	Ladders replaced and reservoirs scoured whilst empty for ladder replacement	Completed	Manager/ Team Leader Reticulation
Cooktown	Water supply	Contingent water supply for Cooktown if natural disaster or other issue renders the Annan WTP inoperable, borefield to be alternative water supply.	30 th June 2018	Investigating costs associated with reinstating borefield. Information note has gone to Council Meeting.	In progress	Manager/Workshop Manager
Cooktown	Reticulation	Install a second dosing pump at the Cooktown High Level Reservoir	30 th June 2019	Shed and chlorine dosing system being built this financial year. Shed has been designed.	In progress	Team Leader Reticulation/Building Supervisor
Cooktown	Annan Water Treatment Plant and Reticulation	Verify temperature for incubator for E.coli measurements using IDEXX	30 th June 2018	Purchase incubator verification thermometer	Complete	Team Leader Treatment
Cooktown	Annan Water Treatment Plant	Turbidity monitoring on individual filters	30 th June 2019	Combined Filter installed. Only 4 filters and if turbidity breakthrough occurs on one filter it is noticeable in combined meter.	Not being implemented	Manager Water and Wastewater
Cooktown	Reticulation	Flushing program	30 th June 2019	Tasks being set up in the SWIM database tasks section to ensure flushing is done yearly.	In progress	Manager Water and Wastewater
Cooktown	Annan Water Treatment Plant and Reticulation	Training Staff in Certificate III Water Operations	30th December 2019	All operators are trained in Cert III. New training starting next year for the Network Operators (Reticulation staff)	In progress	Manager Water and Wastewater

4. Operational and Verification Monitoring – Water Quality Information and Summary.

All drinking water in Cooktown met the recommended values in the Australian Drinking Water Guidelines and the Public Health Regulation for *E.coli*.

The following results for Cooktown are in Appendix A:

Table 2A: Cooktown Reticulation – Treated Water - Physical Chemical – (NATA Lab)
Table 2B: Cooktown Reticulation – Treated Water - Metals – (NATA Lab)
Table 2C: Cooktown Reticulation – Treated Water - E.coli & Coliforms monitoring – (CSC Annan Lab and NATA Lab verification)
Table 2D: Cooktown Reticulation – Physical Chemical – (CSC Annan WTP Lab)
Table 2E: Cooktown Reticulation and Annan WTP Plant – Fluoride – (CSC Annan WTP Lab and NATA Verification)
Table 3A: Cooktown Annan WTP Treated Water Final – Physical Chemical (NATA Lab)
Table 3B: Cooktown Annan WTP Treated Water Final - Metals (NATA Lab)
Table 3C: Cooktown Annan WTP Treated Water Final – Physical Chemical including Free Chlorine – (CSC Annan WTP Lab and on-line analyser)
Table 3D: Cooktown Annan WTP Treated Water Final – <i>E.coli</i> monitoring (CSC Annan WTP Lab & NATA Lab verification)
Table 4A: Cooktown Raw Water - Physical Chemical (NATA Lab)
Table 4B: Cooktown Raw Water - Metals (NATA Lab)
Table 5: Reticulation <i>E. coli</i> 12 Month Rolling Average

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

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

Sample Location Name	Street Name	Site Chosen Because	GPS Coordinates *
Mobil Service Stn	Endeavour Valley Road	Towards the end of the line.	15°28'21.81"S - 145°13'13.98"E
Powder Magazine	Webber Esplanade	Towards the end of the line.	15°27'27.49"S - 145°15'14.33"E
Lions Park	Charlotte St	Ease of access	15°27'51.65"S - 145°15'2.91"E
Cooktown Library	Helen St	Centrally located in Residential area	15°28'16.08"S - 145°14'57.80"E
Simmo's	Furneaux St	Residential area	15°28'13.02"S - 145°15'22.46"E
Water Depot	Boundary St	Towards the end of the line.	15°28'29.80"S - 15°28'29.80"S
Cemetery	Charlotte	Ease of access	15°28'38.90"S - 145°14'30.40"E
Cooktown Hospital	Hope St	Close to Hospital & Medical Services	15°28'40.87"S - 145°14'58.82"E
Cooktown Kindergarten	Charles St	Close to Kindergarten and Schools	15°28'52.40"S - 145°15'10.27"E
Royce's Paddock	Ida St	Towards the end of the line.	15°28'51.64"S - 145°15'31.98"E
Ambrose old Service Racecourse Rd	Racecourse Rd	Centrally located in Residential area	15°28'51.85"S - 145°14'22.21"E
Peninsular Pump Station	Howard St	Towards the end of the line.	15°28'34.25"S - 145°15'26.40"E

5. Notifications to the Regulator

There were no incidents in the 2017-2018 financial year where the Regulator needed to be notified.

There were no events in the 2017-2018 financial year.

6. Customer complaints related to water quality

There were no water quality complaints in the 2017-2018 financial year.

7. DWQMP review outcomes

An internal review of the DWQMP was done in the 2017-2018 financial year. Changes were made to the plan and the plan was approved on the 19/07/2018. Next review of the plan is due by 31 March 2020.

8. DWQMP audit findings

There was no audits on the DWQMP due in the 2017-2018 financial year. The next audit is due by 30 June 2021.

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Appendix A – Summary of compliance with water quality criteria

Table 2A Cooktown Reticulation – Treated Water – Physical Chemical (NATA Lab)

Date Sampled – 01/07/2017 – 30/06/2018									
Parameter	Unit	No of samples required to be collected	No of Samples collected	Summary of Results			ADWQ Guidelines Value (2011)	No of Samples exceeding ADWG	
				Min. Value	Max. Value	Avg. Value		Health	Aesthetic
Alkalinity	mg/L as CaCO ₃	24	24	11.0	50.0	32.9	-	-	-
Calcium	mg/L	24	24	4.0	18.0	12.4	-	-	-
Chloride	mg/L	24	19	16.0	22.0	17.6	< 250 mg/L	-	0
Colour	HU	24	24	1.0	11.0	2.0	< 15 HU	-	0
Electrical Conductance	µS/cm	24	24	110.0	190.0	154.1	-	-	-
Fluoride	mg/L	24	19	0.69	0.80	0.73	< 1.5 mg/L	0	-
Magnesium	mg/L	24	24	0.8	1.0	0.9	-	-	-
pH	pH units	24	24	7.60	8.10	7.86	6.5-8.5	-	0
Potassium	mg/L	24	24	0.9	1.0	1.0	-	-	-
Salinity	mg/L	32	16	59.4	96.1	82.0	-	-	-
SAR		24	24	0.85	2.00	1.29	-	-	-
Sodium	mg/L	24	24	11.0	18.0	15.4	< 180 mg/L	-	0
Sulphate	mg/L	24	19	7.5	14.0	9.6	< 250 mg/L	0	0
Total Dissolved Solids	mg/L	24	23	64.0	110.0	89.9	< 600 mg/L	-	0
Total Hardness	mg/L as CaCO ₃	24	24	14.0	49.0	34.0	< 200 mg/L	-	4
Turbidity	NTU	24	24	0.10	3.20	0.37	< 5 NTU	-	0

Note: Correct number of samples taken. Some parameters not reported by laboratory.

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Table 2B Cooktown Reticulation – Treated Water – Metals (NATA Lab)

Date Sampled – 01/07/2017 – 30/06/2018									
Parameter	Unit	No of Samples required to be collected	No of Samples collected	Summary of Results			ADWQ Guidelines Value (2011)	No of Samples exceeding ADWG	
				Min. Value	Max. Value	Avg. Value		Health	Aesthetic
Arsenic	mg/L	12	12	0.001	0.003	0.0015	0.01 mg/L	0	-
Barium	mg/L	12	12	0.001	0.005	0.0037	< 2 mg/L	0	-
Beryllium	mg/L	12	12	0.0001	0.001	0.0008	< 0.06 mg/L	0	-
Cadmium	mg/L	12	12	0.0001	0.001	0.0002	< 0.002 mg/L	0	-
Chromium	mg/L	12	12	0.001	0.001	0.001	< 0.05 mg/L	0	-
Cobalt	mg/L	12	12	0.001	0.001	0.001	-	-	-
Copper	mg/L	12	12	0.001	0.03	0.0078	< 2 mg/L	0	0
Iron	mg/L	12	12	0.005	0.01	0.0088	< 0.3 mg/L	-	0
Lead	mg/L	12	12	0.001	0.001	0.001	< 0.01 mg/L	0	-
Manganese	mg/L	12	12	0.001	0.005	0.002	< 0.1 mg/L	0	0
Nickel	mg/L	12	12	0.001	0.001	0.001	< 0.02 mg/L	0	-
Selenium	mg/L	12	12	0.003	0.005	0.0045	< 0.01 mg/L	0	-
Vanadium	mg/L	12	12	0.001	0.001	0.001	-	-	-
Zinc	mg/L	12	12	0.005	0.029	0	< 3.0 mg/L	-	0

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Table 2C Cooktown Reticulation – E.coli and coliform monitoring

Date Sampled – 01/07/2017 – 30/06/2018							
	Parameter	Sampling Location	Time Period	No of samples required to be taken	No of samples taken	No of samples with E.coli detected	Public Health Regulation standard (2018)
E.coli and Coliforms	E.coli – MPN/100ml	Various set Locations within the Cooktown Reticulation	01/07/17 – 30/06/18	156	156	0	0

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Table 2D Cooktown Reticulation – Physical Chemical – (CSC Annan WTP Lab)

Date Sampled – 01/07/2017 – 30/06/2018							
Parameter	Unit	Sample Site	No of samples required to be taken	No of Samples collected	Summary of Results		
					Min. Value	Max. Value	Avg. Value
Free Chlorine Residual	mg/L	Fire Station Reservoir	365	365	0.37	1.14	0.78
Total Chlorine Residual	mg/L	Fire Station Reservoir	0	40	0.50	1.25	0.85
Free Chlorine Residual	mg/L	New Pump Station	365	365	0.46	1.50	0.93
Total Chlorine Residual	mg/L	New Pump Station	0	40	0.69	1.33	1.01
Free Chlorine Residual	mg/L	Four Mile Reservoir	365	364	0.41	1.76	0.79
Total Chlorine Residual	mg/L	Four Mile Reservoir	0	41	0.47	1.46	0.84
Free Chlorine Residual	mg/L	Reticulation	36	34	0.5	0.21	0.78
Colour	mg/L	Reticulation	36	35	0.00	1.00	0.08
Dissolved Oxygen	mg/L	Reticulation	36	35	6.01	8.08	6.69
Electrical Conductivity	mg/L	Reticulation	36	35	113.9	692.0	178.9
pH	mg/L	Reticulation	36	35	6.50	7.87	7.34
Total Dissolved Solids	mg/L	Reticulation	36	35	64.7	119.9	95.96
Total Hardness	mg/L	Reticulation	36	35	13.0	47.0	35.0
Turbidity	mg/L	Reticulation	36	35	0.07	0.63	0.18

Samples collected from Cooktown Reticulation sample points as listed in Table 1. No set number of sample required to be collected. These are operational samples to ensure a chlorine residual throughout Cooktown.

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Table 2E Cooktown Reticulation and Annan Water Treatment Plant – Fluoride – (CSC Annan WTP Lab and NATA Lab)

Date Sampled – 01/07/2017 – 30/06/2018								
	Parameter	Sampling Location	No of samples required to be collected	No of samples taken in time period	Summary of results			No of samples exceeding Australian Drinking Water Guidelines value
					Min. Value	Max. Value	Avg. Value	
Fluoride	Fluoride – mg/L Analysed By Cook Shire Council	Annan WTP	365	362	0.14	0.89	0.68	0
	Fluoride – mg/L Analysed By Cook Shire Council (2 sites)	Reticulation	24	24	0.62	0.78	0.69	0
	Fluoride – mg/L Analysed NATA Lab	Annan WTP	12	11	0.66	0.77	0.73	0
	Fluoride – mg/L Analysed NATA Lab (2 sites)	Reticulation	12	11	0.70	0.77	0.72	0

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Table 3A Cooktown Annan WTP Treated Water Final - Physical Chemical (NATA Lab)

Date Sampled – 01/07/2017 – 30/06/2018									
Parameter	Unit	No of Samples required to be collected	No of Samples collected	Summary of Results			ADWQ Guidelines Value (2011)	No of Samples exceeding ADWG	
				Min. Value	Max. Value	Avg. Value		Health	Aesthetic
Alkalinity	mg/L as CaCO ₃	12	14	6.2	52.0	39.2	-	-	-
Calcium	mg/L	4	3	1.0	15.0	6.0	-	-	-
Chloride	mg/L	4	3	16.0	16.0	16.0	< 250 mg/L	-	0
Colour	HU	12	14	1.0	1.0	1.0	< 15 HU	-	0
Electrical Conductance	µS/cm	12	14	98.0	200.0	142.1	-	-	-
Fluoride	mg/L	12	14	0.66	0.76	0.71	< 1.5 mg/L	0	-
Magnesium	mg/L	4	3	1.0	2.0	1.7	-	-	-
pH	pH units	12	14	7.00	7.90	7.39	6.5-8.5	-	0
Potassium	mg/L	4	3	1.0	1.0	1.0	-	-	-
SAR		4	3	1.10	2.40	1.83	-	-	-
Sodium	mg/L	4	3	14.0	17.0	16.0	< 180 mg/L	-	0
Sulphate	mg/L	4	3	7.2	9.4	8.3	< 250 mg/L	0	0
Total Dissolved Solids	mg/L	12	11	60.0	120.0	93.0	< 600 mg/L	-	0
Total Hardness	mg/L as CaCO ₃	12	14	6.6	51.0	29.5	< 200 mg/L	-	4
Turbidity	NTU	12	14	0.1	0.2	0.1	<5 NTU	0	1

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Table 3B Cooktown Annan WTP Treated Water Final – Metals – (NATA Lab)

Date Sampled – 01/07/2017 – 30/06/2018									
Parameter	Unit	No of Samples required to be collected	No of Samples collected	Summary of Results			ADWQ Guidelines Value (2011)	No of Samples exceeding ADWG	
				Min. Value	Max. Value	Avg. Value		Health	Aesthetic
Arsenic	mg/L	4	4	0.001	0.001	0.001	0.01 mg/L	0	-
Barium	mg/L	4	4	0.004	0.005	0.005	< 2 mg/L	0	-
Beryllium	mg/L	4	4	0.0010	0.0010	0.0010	< 0.06 mg/L	0	-
Cadmium	mg/L	4	4	0.0001	0.0001	0.0001	< 0.002 mg/L	0	-
Chromium	mg/L	4	4	0.0010	0.0010	0.0010	< 0.05 mg/L	0	-
Cobalt	mg/L	4	4	0.001	0.001	0.001	-	-	-
Copper	mg/L	4	4	0.001	0.002	0.001	< 2 mg/L	0	0
Iron	mg/L	4	4	0.010	0.019	0.012	< 0.3 mg/L	-	0
Lead	mg/L	4	4	0.001	0.001	0.001	< 0.01 mg/L	0	-
Manganese	mg/L	4	4	0.002	0.012	0.006	< 0.1 mg/L	0	0
Mercury	µg/L	4	3	0.06	0.06	0.06	<1.0 µg/L		
Nickel	mg/L	4	4	0.001	0.001	0.001	< 0.02 mg/L	0	-
Selenium	mg/L	4	4	0.005	0.005	0.005	< 0.01 mg/L	0	-
Vanadium	mg/L	4	4	0.001	0.001	0.001	-	-	-
Zinc	mg/L	4	4	0.005	0.010	0.007	< 3.0 mg/L	-	0

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Table 3C Cooktown Annan WTP Treated Water Final – Physical Chemical – (CSC Annan WTP Lab)

Date Sampled – 01/07/2017 – 30/06/2018									
Parameter	Unit	No of samples required to be collected	No of Samples collected	Summary of Results			ADWQ Guidelines Value (2011)	No of Samples exceeding ADWG	
				Min. Value	Max. Value	Avg. Value		Health	Aesthetic
Free Chlorine Residual	mg/L	365	365	0.93	1.85	1.39	<5	0	-
Total Chlorine Residual	mg/L	0	31	0.70	1.98	1.46	<5	0	0
Alkalinity	mg/L as CaCo ₃	52	365	6.0	58.0	35.5	-	-	-
Aluminium	mg/L	260	281	0	0.2	0.004	0.2	-	0
Colour	HU	365	365	0	5	0.1	<15	-	0
Electrical Conductivity	µS/cm	52	364	1.1	212.5	156.5	-	-	-
pH	pH units	365	364	6.50	7.83	6.84	6.5-8.5	-	0
Total Dissolved Solids	mg/L	365	298	52.8	204.4	97.4	< 600 mg/L	-	0
Total Hardness	mg/L as CaCo ₃	365	258	6.0	52.00	33.58	< 200 mg/L	-	0
Calcium Hardness	mg/L as CaCo ₃	260	234	0	48	28	-	-	-
Turbidity	NTU	365	358	0.03	1.5	0.07	< 5 NTU	-	0

Table 3D Cooktown Annan WTP Treated Water Final – E.coli monitoring

Date Sampled – 01/07/2017 – 30/06/2018					
	Parameter	Sampling Location	No of samples taken in time period	E.coli detected	No of samples exceeding Australian Drinking Water Guidelines guideline value
E.coli	E.coli – MPN/100ml	Final Treated Water Annan Water Treatment Plant	49	0	0

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

Date Sampled – 01/07/2017 – 30/06/2018						
Parameter	Unit	No of Samples required to be collected	No of Samples collected	Summary of Results		
				Min. Value	Max. Value	Avg. Value
Alkalinity	mg/L as CaCO ₃	6	5	5.9	8.6	6.8
Calcium	mg/L	6	6	1.0	1.0	1.0
Chloride	mg/L	6	5	11.0	16.0	13.4
Colour	HU	6	6	16.0	47.0	26.2
Electrical Conductance	µS/cm	6	6	52.0	82.0	65.8
Fluoride	mg/L	6	5	0.03	0.06	0.04
Magnesium	mg/L	6	6	1.0	2.0	1.3
pH	pH units	6	6	6.80	7.30	7.13
Potassium	mg/L	6	6	1.0	1.0	1.0
SAR		6	5	1.30	1.50	1.42
Silicon	Mg/L	6	5	7.6	13.0	11.3
Sodium	mg/L	6	6	7.0	11.0	8.7
Sulphate	mg/L	6	5	1.7	2.2	1.9
Total Dissolved Solids	mg/L	6	6	36.0	54.0	47.0
Total Hardness	mg/L as CaCO ₃	6	6	6.6	11.0	8.0
Turbidity	NTU	6	6	1.3	12.0	3.5

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Table 4B Cooktown Raw Water – Metals (NATA Analysed)

Date Sampled – 01/07/2017 – 30/06/2018						
Parameter	Unit	No of Samples required to be collected	No of Samples collected	Summary of Results		
				Min. Value	Max. Value	Avg. Value
Arsenic	mg/L	4	4	0.001	0.001	0.001
Barium	mg/L	4	4	0.004	0.004	0.004
Beryllium	mg/L	4	4	0.0010	0.0010	0.0010
Cadmium	mg/L	4	4	0.0001	0.0001	0.0001
Chromium	mg/L	4	4	0.0010	0.0010	0.0010
Cobalt	mg/L	4	4	0.001	0.001	0.001
Copper	mg/L	4	4	0.001	0.002	0.001
Iron	mg/L	4	4	0.129	0.224	0.173
Lead	mg/L	4	4	0.001	0.001	0.001
Manganese	mg/L	4	4	0.002	0.008	0.005
Mercury	µg/L	4	3	0.06	0.06	0.06
Nickel	mg/L	4	4	0.001	0.001	0.001
Selenium	mg/L	4	4	0.005	0.005	0.005
Vanadium	mg/L	4	4	0.001	0.001	0.001
Zinc	mg/L	4	4	0.005	0.022	0.013

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Table 5 Cooktown Reticulation - *E. coli* - 12 Month Rolling Average

Drinking water scheme: Cook Shire Council - Cooktown Water

Year	2017/2018											
Month	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June
No. of samples collected	15	12	12	15	12	12	15	12	12	15	12	12
No. of samples collected in which <i>E. coli</i> 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	202	201	193	189	184	180	181	176	173	169	168	156
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 referred 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).