

Drinking Water Quality Management Plan (DWQMP) report

For the financial year: 2017-2018

Scheme: COEN

Cook Shire Council

SPID: 511

10 Furneaux St
Cooktown, Qld, 4895
07 4069 5444
mail@cook.qld.gov.au

**COOK SHIRE COUNCIL - DRINKING WATER QUALITY MANAGEMENT
PLAN
ANNUAL REPORT**

1. Introduction.....	4
2. Operations	4
3. Actions taken to implement the DWQMP.....	5
4. Operational and Verification Monitoring – Water Quality Information and Summary.	7
Table 1: Location of sampling sites within Coen’s water reticulation network.	7
5. Notifications to the Regulator under sections 102 and 102A of the Act	8
6. Customer complaints related to water quality	8
7. Findings and recommendations of the DWQMP auditor.....	8
8. Outcome of the review of the DWQMP and how issues raised have been addressed	8
Appendix A – Summary of compliance with water quality criteria.....	9
Table 2A: Coen Reticulation – Treated Water - Physical Chemical – (NATA Lab)	9
Table 2B: Coen Reticulation – Treated Water - Metals – (NATA Lab)	10
Table 2C: Coen Reticulation – Treated Water - <i>E.coli</i> & Coliforms monitoring – (NATA Lab)	11
Table 2D: Coen Reticulation – Treated Water – Physical/Chemical (Coen WTP On-site lab).....	11
Table 3A: Coen Treatment Plant Final – Physical Chemical – On-site lab.....	12
Table 3B: Coen Treatment Plant Final - Physical/Chemical (NATA Lab).....	13
Table 3C: Coen Treatment Plant Final - Metals (NATA Lab).....	14
Table 4A: Lankelly Creek Raw Water - Physical Chemical (NATA Lab)	15
Table 4B: Coen Dam Raw Water - Physical Chemical (NATA Lab).....	15
Table 4C: Coen Bores Raw Water - Physical Chemical (NATA Lab)	16
Table 4D: Lankelly Creek Raw Water - Metals (NATA Lab).....	17
Table 4E: Coen Dam Raw Water - Metals (NATA Lab).....	17
Table 4F: Coen Bores Raw Water - Metals (NATA Lab)	18
Table 4G: Coen Treatment Plant Raw – Physical Chemical – On-site lab.....	19

**COOK SHIRE COUNCIL - DRINKING WATER QUALITY MANAGEMENT
PLAN
ANNUAL REPORT**

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

COOK SHIRE COUNCIL - DRINKING WATER QUALITY MANAGEMENT PLAN ANNUAL REPORT

1. Introduction

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

Coen has three water sources:

- Lankelly Creek – The Lankelly Creek originates high in the rainforest approximately 15km to the east of the township. The catchment area of approx. 5049 ha is in pristine rainforest and due to the terrain has very limited human impact.
- Coen Dam - Coen Dam, this is a ex gold mining dam. It contains elevated levels of natural arsenic and iron, and in the past has had blue green algae blooms during the warmer months, this is not an annual event, but has happened in the years when seasonal conditions have been favourable.
- Coen Borefield - Coen borefields consists of 3 bores located in the township.

The Lankelly water is treated with:

- Coagulation, Filtration (Pressure anthracite filter and Microfiltration), chlorination.

The Coen Dam is treated with:

- Coagulation, Aeration/Dissolved Air Flotation, Filtration (Pressure anthracite filter and Microfiltration), chlorination.

The Coen Borefield is treated with:

- chlorination

The treated water is pumped to a 0.450ML Reservoir on site, and then gravity feeds directly into the Coen reticulation system.

Coen currently has 123 Service connections which can be broken down to approximately:

- Residential 55%
- Commercial 8%
- With the remaining 37% being Government, Council, Institutional or Other.

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.

**COOK SHIRE COUNCIL - DRINKING WATER QUALITY MANAGEMENT
PLAN
ANNUAL REPORT**

Scheme	Component	Improvement Action and Origin of Action	Target Date	Actions undertaken to date	Status and revised target date	Responsible officer
Coen	Coen 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
Coen	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
Coen	Coen 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
Coen	Coen 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
Coen	Reticulation	Develop procedure to flush on low chlorine residual in reticulation (RMIP)	30 th June 2018	Procedure has been developed.	Completed	Manager
Coen	Coen Water Treatment Plant and Reticulation	Procedures for Coen (RMIP)	30 th June 2018	Procedures for Coen are still in progress. 14 procedures are available for Coen Water treatment plant and reticulation system.	In Progress/on-going	Manager/Team Leader Reticulation
Coen	Borefield	Develop recharge procedure	30 th June 2018	Main replacement completed	Completed	Manager/Team Leader Reticulation
Coen	Borefield	Reconfigure dosing line for Borefield disinfection	30 th June 2018	Dosing lines have been configured	Completed	Team Leader Reticulation
Coen	Bore 10	Replace Bore 10 tank	30 th June 2018	Tank has been replaced and plumbed in	Completed	Team Leader Reticulation

**COOK SHIRE COUNCIL - DRINKING WATER QUALITY MANAGEMENT
PLAN
ANNUAL REPORT**

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

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

The following results for Coen are in Appendix A:

Table 2A: Coen Reticulation – Treated Water - Physical Chemical – (NATA Lab)
Table 2B: Coen Reticulation – Treated Water - Metals – (NATA Lab)
Table 2C: Coen Reticulation – Treated Water - E.coli & Coliforms monitoring – (NATA Lab)
Table 2D: Coen Reticulation – Physical Chemical – (Coen WTP Lab and NATA verification)
Table 3A: Coen Treatment Plant Final – Physical Chemical – (Coen WTP lab)
Table 3B: Coen Treatment Plant Final - Physical/Chemical (NATA Lab)
Table 3C: Coen Treatment Plant Final - Metals (NATA Lab)
Table 4A: Lankelly Creek Raw Water - Physical Chemical (NATA Lab)
Table 4B: Coen Dam Raw Water - Physical Chemical (NATA Lab)
Table 4C: Coen Bores Raw Water - Physical Chemical (NATA Lab)
Table 4D: Lankelly Creek Raw Water - Metals (NATA Lab)
Table 4E: Coen Dam Raw Water - Metals (NATA Lab)
Table 4F: Coen Bores Raw Water - Metals (NATA Lab)
Table 5: Reticulation E. coli 12 Month Rolling Average
Table 6: Coen Dam Cyanobacteria results (NATA Lab)

Table 1 shows the sampling location in Coen.

Table 1: Location of sampling sites within Coen’s water reticulation network.

Sample Location Name	Street Name	Site Chosen Because	GPS Coordinates *
Kindy Corner	Cnr Peninsular Dev. Rd and Reservoir Rd	Water Main “Tees” at this point and close to the Kindy	13°56'38.31"S - 143°12'11.52"E
Heritage House	Regent Street	Ease of access and in the centre of the town	13°56'39.41"S - 143°11'56.84"E
Coen School	Taylor Street	Central, and close to the School	13°56'43.83"S - 143°11'59.12"E
Cultural Centre	Shephard Street	Towards the “End of Line”	13°56'58.55"S - 143°11'53.53"E
Guest House	Regent Street	Central and “Ease of Access”	13°56'39.19"S - 143°12'2.22"E
Old National Parks Office	Coleman Close	Towards the “End of Line”	13°56'23.50"S - 143°11'57.44"E
Lutheran Church	Off Port Stewart Road	Towards the “End of Line”	13°56'58.37"S - 143°12'1.14"E
CSC Depot	Lankelly Drive	Towards the “End of Line”	13°56'27.13"S - 143°12'17.21"E
Okalaka Street	Okalaka Street	Across bridge on the northern side of town	13°56'24"S - 143°12'05"E

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

5. Notifications to the Regulator under sections 102 and 102A of the Act

Coen Water Supply had a non-compliance in July 2018. The sampling site at the depot returned a result of 1 CFU/100ml for E. coli. The non-compliance was reported to the regulator on the 07/07/2018. Water lines in the depot area were flushed and the follow up samples taken had nil detection for E.coli. The Coen depot is the end of the water line and feeds the two depot houses. At the time of the non-compliance, one house was empty and the residents of the other were on holiday, therefore there was minimal water use on that line.

6. Customer complaints related to water quality

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

7. Findings and recommendations of the DWQMP auditor

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. Outcome of the review of the DWQMP and how issues raised have been addressed

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

**COOK SHIRE COUNCIL - DRINKING WATER QUALITY MANAGEMENT PLAN
ANNUAL REPORT**

Appendix A – Summary of compliance with water quality criteria

Table 2A: Coen 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	4	8	15.0	34.0	24.1	-	-	-
Calcium	mg/L	4	8	2.4	6.0	3.8	-	-	-
Chloride	mg/L	4	8	14.0	28.0	19.1	< 250 mg/L	-	0
Colour	HU	4	8	2.1	8.8	4.2	< 15 HU	-	0
Electrical Conductance	µS/cm	4	8	130.0	190.0	143.8	-	-	-
Fluoride	mg/L	4	8	0.08	0.18	0.12	< 1.5 mg/L	0	-
Magnesium	mg/L	4	8	0.7	1.2	1.0	-	-	-
pH	pH units	4	8	7.60	8.00	7.76	6.5-8.5	-	0
Potassium	mg/L	4	8	0.9	1.4	1.0	-	-	-
Salinity	mg/L	4	7	63.0	91.2	71.7	-	-	-
Sodium	mg/L	4	8	19.0	32.0	22.6	< 180 mg/L	-	0
Sulphate	mg/L	4	8	5.8	14.0	11.9	< 250 mg/L	0	0
Total Dissolved Solids	mg/L	4	8	75.0	110.0	89.9	< 600 mg/L	-	0
Total Hardness	mg/L as CaCO ₃	4	8	9.6	19.0	13.2	< 200 mg/L	-	4
Turbidity	NTU	4	8	0.0	1.5	0.6	< 5 NTU	-	0

**COOK SHIRE COUNCIL - DRINKING WATER QUALITY MANAGEMENT PLAN
ANNUAL REPORT**

Table 2B: Coen 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	4	3	0.001	0.003	0.002	0.01 mg/L	0	-
Barium	mg/L	4	3	0.006	0.017	0.012	< 2 mg/L	0	-
Beryllium	mg/L	4	3	0.0010	0.0010	0.0010	< 0.06 mg/L	0	-
Cadmium	mg/L	4	3	0.0001	0.0001	0.0001	< 0.002 mg/L	0	-
Chromium	mg/L	4	3	0.0010	0.0010	0.0010	< 0.05 mg/L	0	-
Cobalt	mg/L	4	3	0.001	0.001	0.001	-	-	-
Copper	mg/L	4	3	0.003	0.014	0.007	< 2 mg/L	0	0
Iron	mg/L	4	3	0.010	0.019	0.013	< 0.3 mg/L	-	0
Lead	mg/L	4	3	0.001	0.001	0.001	< 0.01 mg/L	0	-
Manganese	mg/L	4	3	0.001	0.001	0.001	< 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	3	0.001	0.001	0.001	< 0.02 mg/L	0	-
Selenium	mg/L	4	3	0.005	0.005	0.005	< 0.01 mg/L	0	-
Vanadium	mg/L	4	3	0.001	0.001	0.001	-	-	-
Zinc	mg/L	4	3	0.005	0.005	0.005	< 3.0 mg/L	-	0

**COOK SHIRE COUNCIL - DRINKING WATER QUALITY MANAGEMENT PLAN
ANNUAL REPORT**

Table 2C: Coen Reticulation – Treated Water - *E.coli* & Coliforms monitoring – (NATA Lab)

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 <i>E.coli</i> detected	Public Health Regulation standard (2018)
E.coli and Coliforms	E.coli – MPN/100ml	Various set Locations within the Coen Reticulation	01/07/17 – 30/06/18	52	146	1	0

Table 2D: Coen Reticulation – Treated Water – Physical/Chemical (Coen WTP On-site 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		
				Min. Value	Max. Value	Avg. Value
Free chlorine residual	mg/L	24	432	0.27	1.18	0.66
Alkalinity	mg/L	12	0	-	-	-
Colour	mg/L	12	30	0.000	14.0	4.47
Dissolved Oxygen	mg/L	12	29	0.0	13.80	4.55
Electrical Conductivity	µS/cm ²	12	29	112.4	1206.0	199.1
pH	mg/L	12	30	6.51	7.78	6.89
Turbidity	mg/L	12	30	0.27	1.75	0.64
Total Dissolved Solids	mg/L	12	29	0.4	500.0	83.0

**COOK SHIRE COUNCIL - DRINKING WATER QUALITY MANAGEMENT PLAN
ANNUAL REPORT**

Table 3A: Coen Treatment Plant Final – Physical Chemical – On-site 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		
				Min. Value	Max. Value	Avg. Value
Free chlorine residual	mg/L	365	344	0.36	2.50	0.97
Alkalinity	mg/L	52	4	4.0	20.0	10.8
Colour	mg/L	365	343	0.000	40	2.27
Electrical Conductivity	µS/cm ²	52	33	51.9	262.0	145.5
pH	mg/L	365	343	6.33	7.58	6.86
Turbidity	mg/L	365	344	0.07	2.81	0.47
Aluminium	mg/L	52	40	0.000	0.280	0.055

**COOK SHIRE COUNCIL - DRINKING WATER QUALITY MANAGEMENT PLAN
ANNUAL REPORT**

Table 3B: Coen Treatment Plant 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	4	9	14.0	32.0	21.8	-	-	-
Calcium	mg/L	4	9	1.0	4.0	3.0	-	-	-
Chloride	mg/L	4	9	14.0	23.0	19.7	< 250 mg/L	-	0
Colour	HU	4	9	1.0	2.8	1.9	< 15 HU	-	0
Electrical Conductance	µS/cm	4	9	120.0	180.0	145.6	-	-	-
Fluoride	mg/L	4	9	0.05	0.19	0.12	< 1.5 mg/L	0	-
Magnesium	mg/L	4	9	1.0	2.0	1.3	-	-	-
pH	pH units	4	9	7.00	7.90	7.60	6.5-8.5	-	0
Potassium	mg/L	4	9	0.9	2.0	1.2	-	-	-
SAR		4	9	2.20	4.60	2.99	-	-	-
Salinity	mg/L	4	9	59.3	89.2	72.6	-	-	-
Sodium	mg/L	4	9	18.0	31.0	12.9	< 180 mg/L	-	0
Sulphate	mg/L	4	9	9.0	14.0	21.1	< 250 mg/L	0	0
Total Dissolved Solids	mg/L	4	9	79.0	100.0	89.4	< 600 mg/L	-	0
Total Hardness	mg/L as CaCO ₃	4	9	6.6	18.0	12.7	< 200 mg/L	-	4
Turbidity	NTU	4	9	0.1	0.3	0.2	<5 NTU	0	1

**COOK SHIRE COUNCIL - DRINKING WATER QUALITY MANAGEMENT PLAN
ANNUAL REPORT**

Table 3C: Coen Treatment Plant 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	8	8	0.001	0.003	0.002	0.01 mg/L	0	-
Barium	mg/L	8	8	0.008	0.019	0.014	< 2 mg/L	0	-
Beryllium	mg/L	8	8	0.0010	0.0010	0.0010	< 0.06 mg/L	0	-
Cadmium	mg/L	8	8	0.0001	0.0001	0.0001	< 0.002 mg/L	0	-
Chromium	mg/L	8	8	0.0010	0.0010	0.0010	< 0.05 mg/L	0	-
Cobalt	mg/L	8	8	0.001	0.001	0.001	-	-	-
Copper	mg/L	8	8	0.001	0.004	0.003	< 2 mg/L	0	0
Iron	mg/L	8	8	0.010	0.026	0.012	< 0.3 mg/L	-	0
Lead	mg/L	8	8	0.001	0.001	0.001	< 0.01 mg/L	0	-
Manganese	mg/L	8	8	0.001	0.002	0.001	< 0.1 mg/L	0	0
Mercury	µg/L	8	6	0.06	0.1	0.07	<1.0 µg/L		
Nickel	mg/L	8	8	0.001	0.001	0.001	< 0.02 mg/L	0	-
Selenium	mg/L	8	8	0.005	0.005	0.005	< 0.01 mg/L	0	-
Vanadium	mg/L	8	8	0.001	0.001	0.001	-	-	-
Zinc	mg/L	8	8	0.005	0.011	0.006	< 3.0 mg/L	-	0

COOK SHIRE COUNCIL - DRINKING WATER QUALITY MANAGEMENT PLAN ANNUAL REPORT

Table 4A: Lankelly Creek Raw Water - Physical Chemical (NATA Lab)

The Lankelly Switchboard and 2 new pumps were replaced in the 2017/2018 financial year capital. Due to these works, the Lankelly Creek was not used as a drinking water supply for the 2017/2018 financial year.

Table 4B: Coen Dam Raw 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		
				Min. Value	Max. Value	Avg. Value
Alkalinity	mg/L as CaCO ₃	7	7	13.0	260.0	54.0
Calcium	mg/L	7	7	2.4	73.0	13.1
Chloride	mg/L	7	7	11.0	260.0	50.6
Colour	HU	7	7	2.5	54.0	37.8
Electrical Conductance	µS/cm	7	7	77.0	1400.0	292.6
Fluoride	mg/L	7	7	0.08	1.10	0.32
Magnesium	mg/L	7	7	0.95	33.00	5.90
pH	pH units	7	7	7.00	9.70	7.67
Potassium	mg/L	7	7	0.9	5.0	1.7
SAR	SAR units	7	7	1.30	4.10	2.16
Sodium	mg/L	7	7	10.0	170.0	37.6
Sulphate	mg/L	7	7	1.0	22.0	5.6
Total Dissolved Solids	mg/L	7	7	78.0	790.0	188.3
Total Hardness	mg/L as CaCO ₃	7	7	9.9	320.0	57.3
Turbidity	NTU	7	7	0.2	8.0	5.5

**COOK SHIRE COUNCIL - DRINKING WATER QUALITY MANAGEMENT PLAN
ANNUAL REPORT**

Table 4C: Coen Bores Raw 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		
				Min. Value	Max. Value	Avg. Value
Alkalinity	mg/L as CaCO ₃	3	3	210.0	260.0	237.5
Calcium	mg/L	3	3	73.0	77.0	75.7
Chloride	mg/L	3	3	260.0	290.0	280.0
Colour	HU	3	3	14.0	29.0	19.0
Electrical Conductance	µS/cm	3	3	1.4	1400.0	933.8
Fluoride	mg/L	3	3	1.10	1.10	1.10
Magnesium	mg/L	3	3	33.0	37.00	35.66
pH	pH units	3	3	7.2	7.9	7.7
Potassium	mg/L	3	3	1.0	1.9	1.3
Salinity	psu	3	3	691	693	691
SAR	SAR units	3	3	4.10	4.30	4.23
Silicon	mg/L	3	3	46.0	54.0	51.3
Sodium	mg/L	3	3	170.0	190.0	183.3
Sulphate	mg/L	3	3	22.0	22.0	22.0
Total Dissolved Solids	mg/L	3	2	780	780	780
Total Hardness	mg/L as CaCO ₃	3	3	320.0	340.0	333.3
Turbidity	NTU	3	3	2.9	5.0	3.6

COOK SHIRE COUNCIL - DRINKING WATER QUALITY MANAGEMENT PLAN ANNUAL REPORT

Table 4D: Lankelly Creek Raw Water - Metals (NATA Lab)

The Lankelly Switchboard and 2 new pumps were replaced in the 2017/2018 financial year capital. Due to these works, the Lankelly Creek was not used as a drinking water supply for the 2017/2018 financial year.

Table 4E: Coen Dam Raw 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		
				Min. Value	Max. Value	Avg. Value
Arsenic	mg/L	11	11	0.008	0.023	0.013
Barium	mg/L	11	11	0.008	0.023	0.017
Beryllium	mg/L	11	11	0.0001	0.0010	0.0009
Cadmium	mg/L	11	11	0.0001	0.0017	0.0005
Chromium	mg/L	11	11	0.0010	0.0010	0.0010
Cobalt	mg/L	11	11	0.001	0.001	0.001
Copper	mg/L	11	11	0.004	0.011	0.006
Iron	mg/L	11	11	0.040	0.624	0.230
Lead	mg/L	11	11	0.001	0.003	0.001
Manganese	mg/L	11	11	0.001	0.125	0.029
Nickel	mg/L	11	11	0.000	0.003	0.001
Selenium	mg/L	11	11	0.005	0.005	0.005
Vanadium	mg/L	11	11	0.001	0.001	0.001
Zinc	mg/L	11	11	0.002	0.053	0.023

**COOK SHIRE COUNCIL - DRINKING WATER QUALITY MANAGEMENT PLAN
ANNUAL REPORT**

Table 4F: Coen Bores Raw 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		
				Min. Value	Max. Value	Avg. Value
Arsenic	mg/L	2	2	0.005	0.011	0.008
Barium	mg/L	2	2	0.011	0.011	0.011
Beryllium	mg/L	2	2	0.0010	0.0010	0.0010
Cadmium	mg/L	2	2	0.0001	0.0001	0.0001
Chromium	mg/L	2	2	0.0010	0.0010	0.0010
Cobalt	mg/L	2	2	0.001	0.001	0.001
Copper	mg/L	2	2	0.002	0.004	0.003
Iron	mg/L	2	2	0.499	0.642	0.571
Lead	mg/L	2	2	0.001	0.001	0.001
Manganese	mg/L	2	2	0.086	0.100	0.093
Nickel	mg/L	2	2	0.002	0.004	0.003
Selenium	mg/L	2	2	0.005	0.005	0.005
Vanadium	mg/L	2	2	0.001	0.004	0.004
Zinc	mg/L	2	2	0.022	0.027	0.025

**COOK SHIRE COUNCIL - DRINKING WATER QUALITY MANAGEMENT PLAN
ANNUAL REPORT**

Table 4G: Coen Treatment Plant Raw – Physical Chemical – On-site 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		
				Min. Value	Max. Value	Avg. Value
Alkalinity	mg/L	365	7	5.0	10.0	7.0
Colour	mg/L	365	289	0.000	394	85
Electrical Conductivity	µS/cm ²	365	42	45.1	165.4	107.1
pH	mg/L	365	304	5.08	9.94	6.29
Turbidity	mg/L	365	293	0.83	36.9	6.32

COOK SHIRE COUNCIL - DRINKING WATER QUALITY MANAGEMENT PLAN ANNUAL REPORT

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

Drinking water scheme: Cook Shire Council - Coen Water

Year	2017/2018											
Month	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June
No. of samples collected	14	12	12	15	12	9	12	12	9	15	12	12
No. of samples collected in which <i>E. coli</i> is detected (i.e. a failure)	1	0	0	0	0	0	0	0	0	0	0	0
No. of samples collected in previous 12 month period	153	155	153	152	152	152	152	149	152	146	149	146
No. of failures for previous 12 month period	1	1	1	1	1	1	1	1	1	1	1	1
% of samples that comply	99.3%	99.4%	99.3%	99.3%	99.3%	99.3%	99.3%	99.3%	99.3%	99.3%	99.3%	99.3%
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).